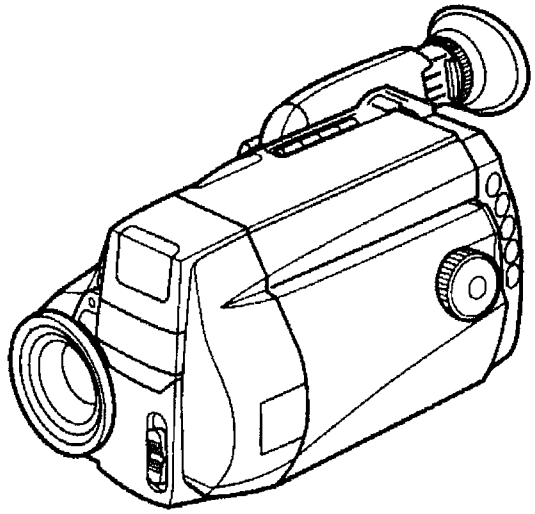
HITACHI

SERVICE MANUAL



TK | No.6906E

VM-E553LE/E555LE
VM-E558LE/E658LE
VM-H755LE/H855LE
VM-H955LE AC Adapter VM-ACE5E

UH MECHANISM

■ **When Servicing the Mechanism:**
This camera/recorder uses a UH mechanism. When servicing the UH mechanism, refer to the following service manuals:

Item	Manuals to be referred to
Disassembly	UH Mechanism (No. 6811E)
Mechanical Adjustment	Chapter 7 in this manual
Maintenance/ Inspection Procedure	UH mechanism (No. 6811E)
Exploded View	Chapter 4 in this manual

U21602#1026055

8 Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

March 1999 AV Consumer Products Division, Tokai

CAUTION

Lithium battery; danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacuturer's instructions.

When replacing the lithium battery it is important to use the same type and connect it correctly.

WARNING:
- Lithium batteries contain dangerous chemicals.
- Handle and dispose of with great care.
- Do not throw in a fire.
- Do not short circuit it.
- For disposal place in a plastic bag and put in waste bin.

CAUTION (COLOR LCD)

LCD display; the liquid crystal display (LCD) panel is mode by highly precise technology.
More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This mode not indicate a fault as the LCD panel stretches the limits of current technology.

CAUTION (CRT EVF)

Be careful of the section painted in white on the electronic viewfinder circuit board as it generates a high voltage.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

X-RAY RADIATION

The primary source of X-ray radiation in this viewfinder is the picture tube. The tube used in this viewfinder is specially constructed to limit X-ray radiation emission. For continued X-ray radiation protection, the replacement tube must be same type as the original, Hitachi approved one.

How to discriminate the "TYPE" identifications in the manual

The parts and circuits are identified by "TYPE" in this manual to discriminate the differences between models. The TYPE numbers are the same as the model numbers. The table below shows how to read the type identifications.

TYPE identification	Model name
TYPE 553	VM-E553LE
TYPE 555	VM-E555LE
TYPE 558	VM-E558LE
TYPE 658	VM-E658LE
TYPE 755	VM-H755LE
TYPE 855	VM-H855LE
TYPE 955	VM-H955LE

How to discriminate the "MODEL" identifications in electric circuit adjustment in the manual.

If the adjustment values (input data) vary depending on the model, they will be individually described using "MODEL" indications. The following shows the relationship between the "MODEL" indications and model

MODEL identification	Model name
MODEL EA	Not used
MODEL HA	Not used
MODEL EE	VM-E553LE VM-E555LE VM-E558LE
MODEL HE	VM-E658LE VM-H755LE VM-H855LE VM-H955LE

ENGLISH

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EXPLODED VIEW &
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CHAPTER 1 GENERAL INFORMATION

SPECIFICATIONS

■ General

Power requirements	7.2V DC
Power consumption	VM-E553LE/E555LE/E558LE: 3.5 W (when recording/LCD monitor OFF) 4.3 W (when recording/LCD monitor ON) VM-E658LE: 3.5 W (when recording/LCD monitor OFF) 4.4 W (when recording/LCD monitor ON) VM-H755LE/H855LE: 3.6 W (when recording/LCD monitor OFF) 4.6 W (when recording/LCD monitor ON) VM-H955LE: 3.6 W (when recording/LCD monitor OFF) 4.7 W (when recording/LCD monitor ON)
Operating temperature	0°C to 40°C
Operating humidity	< 80%
Storage temperature	-20°C to 60°C
Dimensions	118.5 (W) × 102.5 (H) × 181 (D) mm
Weight	VM-E553LE/E555LE/E558LE/H755LE: Approx. 850g (without battery pack and cassette) VM-E658LE/H855LE/H955LE: Approx. 880g (without battery pack and cassette)

■ Video Recorder Section

Format	8 mm
Record/playback system	Two video record/playback heads
Video signal	PAL colour & CCIR monochrome signals 625 lines
Tape speed	SP: 20.05 mm/sec.
Video output	1.0 Vp-p, 75 ohm
Audio output	-8 dBs, less than 1K ohm
Fast forward/rewind time	Approx. 6 minutes with P5-90 cassette

■ Camera Section

Scanning	625 lines/50 fields/25 frames
Required minimum illumination	VM-E553LE/E555LE: 0.3 lux VM-E558LE/E658LE: 0.1 lux VM-H755LE/H855LE/H955LE: 0.5 lux
Camera device	1/4" C.C.D
Lens	F1.6 - 3.8 (4 - 88 mm) 22:1 power zoom lens with auto focus and auto iris functions
Lens diameter	46 mm

COMPARISON OF FEATURES

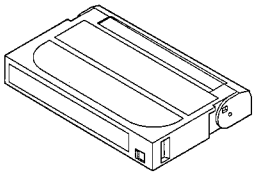
	ITEM	VM-E645LE/E648LE VM-H845LE/H946LE	VM-E553LE/E555LE/E558LE/E658LE VM-H755LE/H855LE/H955LE
GENERAL	Power Requirements	7.2V DC	
	Power Consumption (When recording/LCD monitor ON)	4.4W [VM-E645LE/E648LE] 4.6W [VM-H845LE] 4.9W [VM-H946LE]	4.3W [VM-E553LE/E555LE/E558LE] 4.4W [VM-E658LE] 4.6W [VM-H755LE/H855LE] 4.7W [VM-H955LE]
	Dimensions (W x H x D mm)	118.5 x 102.5 x 181	
	Weight	Approx. 860g [VM-E645LE/E648LE/H845LE] Approx. 870g [VM-H946LE]	Approx. 850g [VM-E553LE/E555LE/E558LE/H755LE] Approx. 888g [VM-E658LE/H855LE/H955LE]
VIDEO	Format	8mm [VM-E645LE/E648LE] 8mm (Hi-8) [VM-H845LE/H946LE]	8mm[VM-E553LE/E555LE/E558LE/E658LE] 8mm (Hi-8) [VM-H755LE/H855LE/H955LE]
	Record/Playback System	Two video record/playback heads	
	Video Signal	PAL colour & CCIR monochrome signal 625 lines	
	Tape Speed	20.05mm/sec	
	F.F/Rew Time	Approx. 6 minutes with P5-90 cassette	
	Head Weel	40 mm	
	Basic Chassis Type	UH	
CAMERA	Scanning	625 lines/50fields/25 frame	
	Required Minimum Illumination	0.5 lux	0.1 lux [VM-E558LE/E658LE] 0.3 lux [VM-E553LE/E555LE] 0.5 lux [VM-H755LE/H855LE/H955LE]
	Camera Device	1/4" C.C.D	
	Lens Diameter	46 mm	
	Zoom Ratio	16 : 1 (4.0 - 64.0mm)	22 : 1 (4.0 - 88.0mm)
	Aperture	F1.4 - 2.8	F1.6 - 3.8
	Zoom Speed	1 Speed	Adjustable speed
FEATURES	Electronic Viewfinder (EVF)	CRT (Black & White)	
	Electrical Zoom Function	Yes [x 240 (16 x 10 x INST. ZOOM)]	Yes [x 400 (22 x 12 x INST. ZOOM)]
	INST. ZOOM Function	Yes (x 1.5)	
	Autofocus System	Video AF System	
	Program AE (Shutter Speed)	Yes (Program AE only)	
	Selective Program AE	No	No [VM-E553LE/E555LE/E558LE] Yes [VM-E658LE/H755LE/H855LE/H955LE]
	AV Input Function	No	
	S Output	No [VM-E645LE/E658LE] Yes [VM-H845LE/H946LE]	No [VM-E553LE/E555LE/E558LE/E658LE] Yes [VM-H755LE/H855LE/H955LE]
	Audio System (Microphone)	Monaural [VM-E645LA] Stereo [VM-H845LA/H945LA]	Monaural [VM-E553LE/E555LE/E558LE/E658LE] Stereo [VM-H755LE/H855LE/H955LE]
	Multi Playback (PAL 60 Conversion)	Yes	
	Digital Effect & Fade	Yes	
	Date Serch	Yes	
	Electronic Image Stabilizer (E.I.S)	Yes (Picture element system)	No [VM-E553LE/E558LE] Yes (Electrical system) [VM-E555LE] Yes (Picture element system) [VM-E658LE/H755LE/H855LE/H955LE]
	Manual Focus	Yes (Auto/Manual selective)	
	LCD Display	3-inch [VM-E645LE/E648LE/H845LE] 3.5-inch [VM-H945LE]	2.5-inch [VM-E553LE/E555LE/E558LE/H755LE] 3-inch [VM-E658LE/H855LE] 3.5-inch [VM-H955LE]
	Internal DC Light	No[VM-E645LE/E648LE] Yes [VM-H845LE/H945LE	No [VM-E553LE/E555LE/E558LE/H755LE] Yes [VM-E658LE/H855LE/H955LE]
	Internal Battery Charge	No	Yes
ACCE-SSORY	AC Adapter/Charger	VM-ACE4E	VM-ACE5E
	Battery Pack	VM-BPL13	
	Remote Controler	VM-RME411A	VM-RME411A(R)

COMPARISON OF MAIN CONTROL ICs

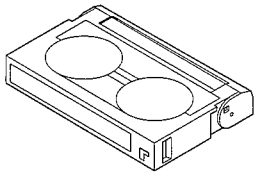
ITEM		VM-E645LE/E648LE VM-H845LE/H946LE	VM-E553LE/E555LE/E558LE/E658LE VM-H755LE/H855LE/H955LE
CAMERA (AUTOFOCUS)	CCD Sensor	ICX211 (IC1001)	ICX209AK-K [VM-E658LE/H755LE/H855LE/H955LE] (IC1001) ICX206AK-6 [VM-E553LE/E555LE/E558LE] (IC1001)
	Gyro (Vert.)	ENC-03JA -03(IC1401)	
	Gyro (Horiz.)	ENC-03JB -03(IC1402)	
	Gyro Amp	NJM064V (IC1403)	
	Gyro Reset	XP4501 (Q1402)	
	CDS/AGC & A/D Conv.	HD49323F (IC1101)	
	DSP	HG73C012TE (IC1102)	
	Drive Pulse Generator	µPD16510GR (IC1103)	
	D (Digital) -µP	HD6433042ST39F (IC1104)	HD6432237M03TE (IC1104)
	EEPROM	X2509V-217 (IC1105)	
	F Det./Iris Drive	µPC5023GS-147GJG (IC1201)	
	Zoom /Focus Motor Driver	MPC17A34ZVM (IC1301)	µPD16833AG3 (IC1301)
CRT EVF	Video Amp/Vertical & Horizontal Deflection	HA118179F (IC2001)	
SYSTEM CONTROL (POWER) & SERVO	System Control µP	CXP87248A-147R (IC901)	CXP87248A-153R (IC901)
	Back-up Det.	NJU7284EV (IC902)	
	Character Gen.	BU6294AFV (IC904)	µPD6461GS-942-E1 (IC904) / µPD6461GS-941-E1 (IC904)
	Level Shift	SN74AHC126PW (IC906)	
	IR Receiver	GP1U101X (IC907)	
	ATF	µPC5023GS-122-E1 (IC601)	
	Cylinder Motor Drive	LB1950V-TRM (IC631)	
	Capstan Motor Drive	LB1951V-TRM (IC651)	LB1991V (IC651)
	Loading Motor Drive	BA6417F (IC671)	
	PWM	BA9735KV (IC551)	
	CHG Current Cont.	Not provided	MM6564XFBE (IC0001)
VIDEO & AUDIO	Video Head Switch	HA118189MPER (IC101)	
	Phase EQ/FM Peak	µPC5023GS-146 (IC102)	
	Video DSP	HG73C029TE (IC201)	HG73C061TE (IC201)
	V. RAM	NN51V4260A-50 (IC202)	MSM54V16258A50 (IC202)
	Sync Sepa.	BA7071F (IC203)	
	Video Amp	µPC5023GS-153 (IC204)	
	Audio Process	HA118193F [VM-H845LE/H945LE] (IC401) LA7458W [VM-E645LE/E648LE] (IC401)	HA118193F [VM-H755LE/H855LE/H955LE] (IC401) LA7458W [VM-E553LE/E555LE/E558LE/E658LE] (IC401)
	Speaker Amp	TDA7052AT [VM-H845LE/H945LE] (IC402S)	TDA7052AT [VM-H755LE/H855LE/H955LE] (IC402S)
	Audio Matrix	M5223FP [VM-H845LE/H945LE] (IC404S, IC405S)	NJM2112 [VM-H755LE/H855LE/H955LE] (IC403S)
LCD DISPALY	LCD Process	IR3Y29AM (IC5301)	
	LCD D/A Conv.	M62352GP (IC5302)	
	LCD SWR.	TL5001CD (IC5401)	TL5001CD (IC5401, IC5501)
	TRANS INV.	HLMM936 (IC5501)	Not provided
	LED Cont.		NJM2406F (IC5502)
	Pulse Gen.	LZ9GH16 [VM-E645LE/E648LE/H845LE] (IC5601) LZ9GH17 [VM-H945LE] (IC5601)	LZ9GH16 [VM-E658LE/H855LE] (IC5601) LZ9GH18 [VM-E553LE/E555LE/E558LE/H755LE] (IC5601) LZ9GH20 [VM-H955LE] (IC5601)
	OSC Cont.	NJM3414 AV (IC5602)	

JIGS AND TAPES FOR ADJUSTMENT

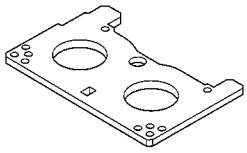
1. Alignment Tape
20HSC-3: No. 7099232



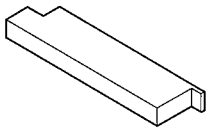
2. Cassette Torque Meter
SRK-8T-232: No. 7099236
SRK-8T-212: No. 7099402



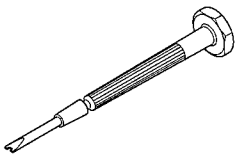
3. Master Plane
No.7099237



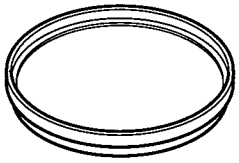
4. Reel Disk Height Jig
No. 7099238



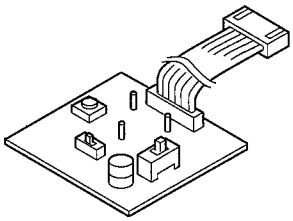
5. Special Driver
No. 7099239



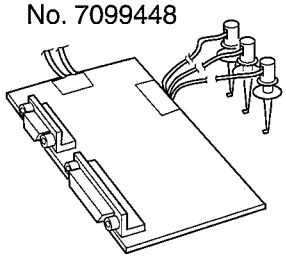
6. C12 Light Balance Filter
No. 7099369



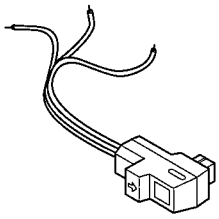
7. ATF-R Jig *(*1,*2)*
No. 7099461



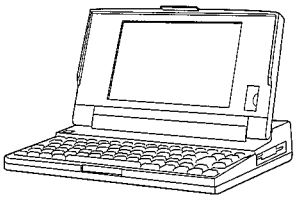
8. DSP-R jig
No. 7099448



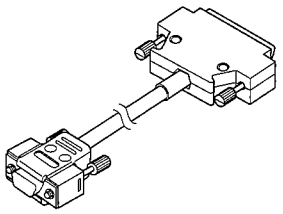
9. DSP AV Output Jig
No. 7099456



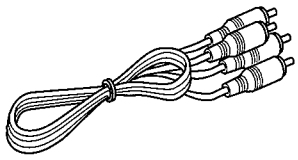
10. Presonal Computer
[Goods on the maket]

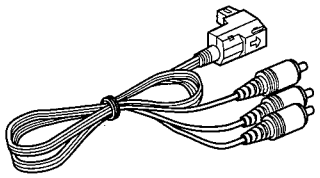


11. Personal Computer Cable
RS-232C (9-pin or 25-pin)
Straight Type Cable
[Goods on the maket]

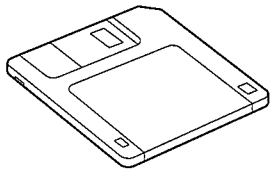


12. AVOutput Cable *(*3)* [Accessory]
US Pin Jack Type or 20-pin AV Jack Type

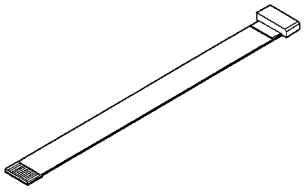




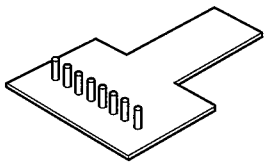
13. Adjustment Floppy Disk ***[New Jig]***
No. TP11933



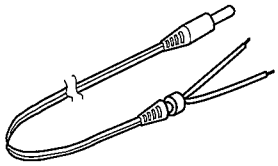
14. 4-Pin Extension Cable
No.7069203



15. LCD Adjustment Jig
[New Jig]
No. JT17731



16. ODC DC CORD
[New Jig]
No. TE13171



Caution for jigs :

**1.* Always set SW3 on the ATF-R jig to ON.

**2.* The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.

**3.* Either the monaural or stereo AV input/output cable can be used.

HOW TO USE THE EXTENSION CABLES AND JIGS

Name of Jig	Parts No.	How to Use
4-Pin Extension Cable	7069203	Installed between the VCA circuit board and mode switch (mechanism state switch).
ODC DC Cord	TE13171	Power supply cable for power shut off level (ODC) adjustment. Positive: Black Negative: Black & White

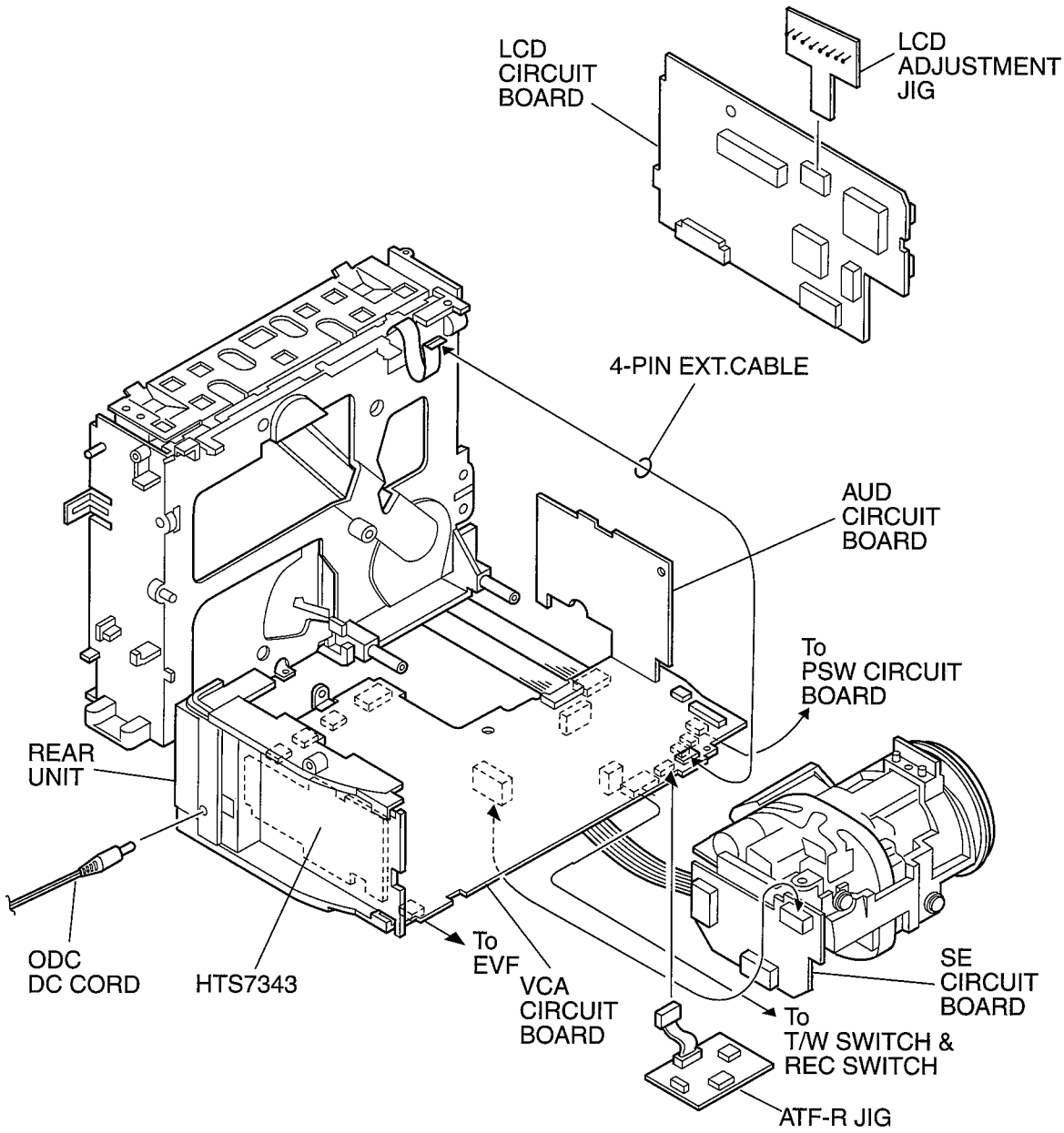


Fig.1-1 Extension Cable and Jig Connection Diagram

SERVICE MANUAL ABBREVIATION LIST

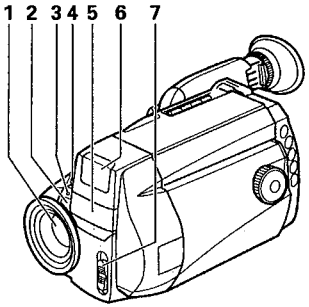
A	
ACC	Automatic Color Control
ADD	Adder
ADRS	Address
AF	Automatic focus (Autofocus)
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
AI	Automatic Intelligence
AIC	Automatic Iris Control
ALC	Automatic Level Conrol
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemle (Phase Matching)
AUD.	Audio
AUX	Auxiliary
A/D	Analog-to-Digital Converter
A.DUB	Audio Dubbing
B	
B (BLU)	Color Signal Blue
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BLK	Blanking
BPF	Bandpass Filter
BUF.	Buffer Amplifier
B-YL	Color Difference Signal B-YL
C	
C (CHROMA)	Chrominance Signal
CAM	Camera
CAPST.	Capstan
CARRI.	Carrier
CATV	Cable TV
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CDS	Correlated Double Sampling
CG	Character Generator
C.FG (CFG)	Capstan Frequency Generater
C.FREE RUN	Capstan Free Run
CH (Ch or ch)	Channel
CHARA.	Character
CHD	Camera Horizontal Drive Pulse
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COMPA.	Comparator
COMPE.	Compensator
COMP-EXP	Compressor-Expander
COMPO	Composite
CONT.	Control
CONV.	Converter
COUNT.	Counter
CP	CP
C.PAUSE	Camp Pulse
C/R	Capacitor/Resistor
C.RESET	Countor Reset or Camera Reset

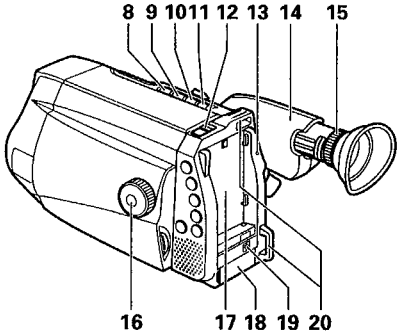
C	
C.REVERSE	Count Reverse
CS	Communication Signal
CST	Cassette
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder
D	
D (Digital)	Digital
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deephasis
DEF	Deflefction
DEMOD.	Demodulator
DET	Detector
DIFF. AMP	Differential Amplifier
DISP.	Display
DL	Delay Line
DO	Dropout
DOC	Dropout Compensator
DSP	Digital Signal Processor
D/W	Dark/White
D.ZOOM (DZ)	Digital Zoom
E	
EAROM (EA-ROM)	Electrically Alterable Read Only Memory
EEPROM (EEP-ROM)	Electrical Erasable Proframmed
E-E	Electronic-to-Electronic
EIS (E.I.S.)	Electronic Image Stabilizer
EMPHA. (EMPH)	Emphasis
EQ	Equalizer
ESS	Supply End Sensor
EST	Take-up End Sensor
EVF	Electronic Viewfinder
EXT.	External
E.ZOOM	Electronic Zoom
F	
F.ADV	Frame Advance
F/V	Frequency-to-Voltage Converter
FB	Feed back
FE	Full Erase
FF (F/F)	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
fsc	Sub Carrier Frequency
FWD	Forward
G	
GEN.	Generator
GND	Ground
H	
H (HORIZ.)	Horizontal
HBHi-Band	

H	
HBF	Horizontal Burst Flag
HD	Horizontal Drive
Hi-Fi	High Fidelity
HPF	High-pass Filter
I	
IF	Intermediate Frequency
INDI.	Indicator
INST.	Instant
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays
L	
LB	Low-Band
LCD	Liquid Crystal Dissplay
LIN.	Linear
LM	Loading Motor
LNC	Line Noise Canceller
LOG	Logarithm
LP	Long Play
LPF	Low-pass Filter
LUMA	Luminance
L/R	Left/Right
M	
MAN	Manual
M.BRAKE	Main Brake
M.CUT	Monitor Cut
MEM.	Memory
MIC	Microphone
MIX	Mixer
MMV	Monostable Multivibator
MOD.	Modulator
M.STATE	Mechanism State
M.STOP	Memory Stop
N	
NEG	Negative
NFB	Negative Feed Back
NOR. (NORM)	Normal
NR	Noise Reduction
O	
OB	Optial Black
OSC	Oscillator
OSD	On-Screen Display
P	
PB (PLAY)	Playback
PG	Pulse Generator
PLL	Phase Locked Loop
POS.	Positive
PROG.	Program
PROT.	Protector
PWM	Pulse Width Modulation
R	
R (RED)	Color Signal Red
RAM	Random Access Memory
REC	Record
RECT.	Rectifier

R	
REF.	Reference
REG.	Regulator
REV	Review
REW	Rewind
RF	Radio Frequency
ROM	Read Only Memory
RSS	Supply Reel Sensor
RST	Take-up Reel Sensor
R-YL	Color Difference Signal R-YL
S	
SAW	Sawtooth Signal
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEPA. (SEP)	Separator
S/H	Samle and Hold
SP	Standard Play or Speaker
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STABI.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW	Switch
SW30Hz (15 or 25Hz)	30Hz Head Switching Pulse (15 or 25Hz Head Switching Pulse)
SYNC	Synchronizing signal
SYS.CON	System Control
T	
T (TELE)	Telephoto Angle
T.BRAKE	Take-up Brake
TP	Test Point
T.REEL	Take-up Reel Sensor
TRS	Transfer
V	
V (VERT.)	Vertical
V.AGC	AGC Voltage
VCO	Voltage Controlled Oscillator
VD	Vertical Drive
V.DUB	Video Dubbing
VHS	Video Home System
VOL.	Volume
VP	Voltage Pulse
VCXO	Voltage Controlled Crystal Oscillator
W	
W (WIDE)	Wide Angle
WHT	Color Sifnal White
WHD	Wide Horizontal Drive
WHT BAL.	White Balance
Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YEL (Ye)	Color Signal Yellow
YL	Luminance Signal (Low Component)

CONTROLS AND FUNCTIONS





1. Lens Door
The door will automatically open when the CAM/OFF/VIDEO switch is set to "CAM". Setting the switch to "OFF" will close the door.

2. Infrared Ray Receiving Section
Receives infrared rays from the remote control unit

3. Record Indicator
This indicator flashes to indicate that the camera/recorder is recording.

4. Active Light Switch (for VM-H855LE/VM-H955LE)
When this switch is set to AUTO, the active light turns on or off automatically according to the brightness of the object. When switch is set to ON, the active light turns on. Set the switch to OFF to turn the light off manually.

5. Microphone
Sensitive to sounds coming from the direction in which the camera is pointed.

6. Active Light (for VM-H855LE/VM-H955LE)
When the CAM/OFF/VIDEO switch is in CAM position, the active light is turned on and off automatically or manually depending on the position of the light switch. Turn the active light off after use.

NOTES:

- The active light will not turn on when the CAM/OFF/VIDEO switch is set to VIDEO
- If there is no cassette in the camera/recorder, or if a recording prevented cassette is inserted with the active light switch set to AUTO, the light will automatically go out after 5 minutes.

7. CAM/OFF/VIDEO Switch
This switch turns the camera/recorder on and off. Set the switch to CAM for camera recording, and to VIDEO for playback Hold down the small red button as you slide the switch to CAM or VIDEO. You do not need to hold down the red button to slide the switch to OFF.

8. F.FWD Button
Press this button during stop or rewind mode, and fast-forwarding starts. During fast forward, press and hold this button to visually scan the tape forward at 9 times the normal playback speed. Press the button during playback of tape, and the tape is played back in the forward direction approximately 9 times faster than the normal speed to confirm the recorded content. Press PLAY button to return to normal playback mode or press STOP button to stop tape movement ("F-SEARCH AND R-SEARCH", page 28). Also use F.FWD button when setting the date/time and creating a title.
NOTE: You can also visually scan forward when the camera/recorder is in record/pause (stand-by) mode by pressing and holding this button.

CONTROLS AND FUNCTIONS

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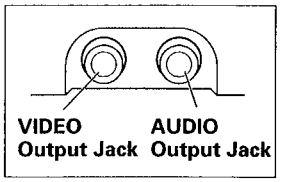
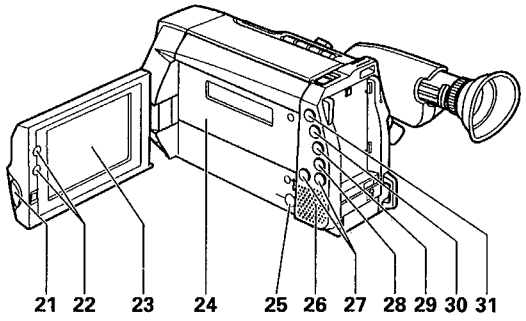




9. PLAY Button
Use to play back recorded tapes and create a title.
NOTE: When the camera/recorder is in record/pause (stand-by) mode, pressing and holding this button will play the tape at normal.

10. REW/REVIEW Button
Press this button during stop or fast forward mode, and fast-rewinding starts During rewind, press and hold this button to visually scan the tape backwards at 7 times the normal playback speed. Press the button during playback of tape, and the tape is played back in the rewind direction approximately 7 times faster than the normal speed to confirm the recorded contents Press PLAY button to return to normal playback mode or press STOP button to stop tape movement ("F-SEARCH AND R-SEARCH", page 28). Also use this button to review the last few seconds of the tape you are recording. Use REW/REVIEW button when setting the date/time and creating a title.
NOTE: You can also visually scan backward when the camera/recorder is in record/pause (stand-by) mode by pressing and holding this button.

11. STOP Button
The STOP button is used to stop playback, rewind, and fast forward operations. The STOP button has no effect during record operation. Also use STOP button when setting the date/time and creating a title.

12. BATTERY Release Lever
Releases the battery attached to camera/recorder

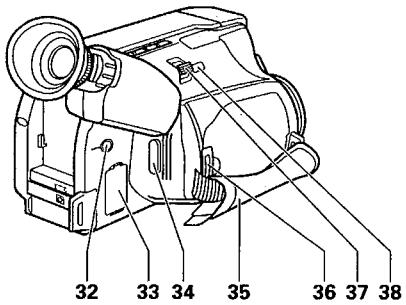
13. CHARGE Indicator
When the battery is being charged, this indicator will flash or light to show the charged level as a reference ("CHARGING THE BATTERY", page 17).

14. Electronic Viewfinder

15. Diopter Control
To use the electronic viewfinder, pull the eye cup all the way, and then turn this control for your optimum focus adjustment.

16. PROGRAM AE Dial (for VM-H755LE/VM-H855LE/VM-H955LE)
Use this dial to select the exposure that suits the subject condition. Turn the dial to select the desired recording mode: you can record scenes with the exposure according to the mode ("USING THE PROGRAM AE DIAL", page 37). During playback, this dial can also be used to adjust the finer derails of playback pictures. (See page 38 for details.)

17. Power Supply Attachment Section
Attach the battery pack (provided) here.



18. AUDIO/VIDEO Output Jacks (Behind the cover)
Use this jack to connect the camera/recorder to a VCR or television. (See pages 51, 55, 63.)
- Connect the yellow plug of the audio/video cable to the yellow jack (VIDEO OUT) and the white plug to the white jack (AUDIO OUT).

19. DC IN Jack
Plug in the AC adaptor here to charge a battery or power the camera/recorder from AC outlet. In addition, connect the optional car battery cord to this jack, in which case, you will need a DC cord (optional).

20. Shoulder Strap Slots
Attach the shoulder strap here.

21. OPEN Button
Push this button to open the LCD monitor.

22. Bright Control Buttons
Use these buttons to adjust the brightness of the LCD monitor screen.

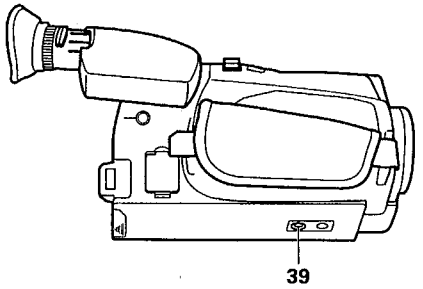
23. LCD Monitor
You can view the pictures as they are being recorded and play them back immediately after recording on the LCD screen.

24. Cassette Holder
Press the EJECT button to open the cassette holder. Be aware of the cassette direction when inserting.
NOTE: Power source must be connected to open the cassette holder.

25. EJECT Button
Operates with the CAM/OFF/VIDEO switch either on or off, if a power source is connected to the camera/recorder.
NOTE: The EJECT button is inoperable unless the LCD monitor is completely open.

26. Speaker
You can listen to the recorded sound.
NOTE: No sound is heard when the LCD monitor is closed.

27. FOCUS/VOL. (volume) Control Buttons
When the CAM/OFF/VIDEO switch is set to CAM, these buttons will be the focus control buttons. Press them simultaneously to select manual or automatic focusing. To control focus manually, press the ▲ or ▼ button to bring the subject into focus. When manual focus has been engaged, "FOCUS" will appear in the viewfinder or on the LCD monitor.
When you are viewing playback pictures on the LCD monitor with the CAM/OFF/VIDEO switch set to VIDEO, these buttons can be used to control the volume of the built-in speaker.



28. DATE/DISP. Button
When the CAM/OFF/VIDEO switch is set to CAM, this button can be used as the DATE or DISPLAY button; set the date and time, and select the date display you want to record. In the VIDEO mode, the DATE/DISP. button is used as the DISPLAY button.
NOTE: Be sure to insert the clock battery before setting the date and time or creating a title.

29. EFFECTS Button
Use this button to digitally process the image you are going to record or the playback image. During recording, you can select among six modes: 16×9, negative/positive, ×400 digital zoom, half-mirror, mosaic, or art. During playback, you can select among three modes: 16×9, art, or sepia.

30. FADE Button
During recording you can add a professional touch to your recordings by fading in and out of the scenes. You can select the six fade modes — the white fade, wipe fade, mosaic fade, art fade, zoom fade and black-and-white fade

31. EIS (Electronic Image Stabilizer) Button
Press to display " " in the viewfinder or on the LCD monitor. EIS corrects slight shaking of the image to be recorded.

32. PAL60 Button (Multi Playback)
Used when playing NTSC tapes recorded in the SP mode.
Press this button to display "PAL60" only when connecting the camera/recorder to a PAL TV which handles PAL60 mode signal and has vertical sync adjustment circuitry for 60Hz.
NOTES:
- A PAL recorded tape cannot be normally played back when "PAL60" is displayed.
- The PAL60 button is effective during playback only.
- See TV instruction manual for details about setting of PAL60 mode.
- Depending on the state of the tape recorded, the PAL60 button may not operate normally.
- The PAL60 mode will be released when the camera/recorder is turned off.

33. Audio/Video Output Jack (Behind the cover)
For VM-E555LE: Use the RF Converter Unit (optional) to connect this jack to a TV to view the pictures played back by the camera/recorder.
For VM-H755LE/VM-H855LE/VM-H955LE: Use the Audio/Video output cable (provided) or RF Converter Unit (optional) to connect this jack to a TV to view the pictures played back by the camera/recorder.

CONTROLS AND FUNCTIONS
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43
44
40
41
42
34. Start/Stop Button
This button is used to control the camera/recorder. When this button is pressed with the camera/recorder set to the record/pause mode, the tape runs to start recording.
When this button is pressed again, the tape stops and the camera/recorder enters the record/pause (stand-by) mode. This button may also be used to display a still picture during playback mode.
35. Hand Strap
Adjust to best fit to your hand. (Refer to page 10.)
36. Clock Battery Compartment
Pull the battery holder and install the lithium battery (provided).
37. Power Zoom Control
This control performs zooming electrically.
"W": Picture becomes wider gradually.
"T": Picture becomes telescopic gradually.
38. INST. ZOOM (Instant Zoom) Button
Use this button to magnify the image being recorded 1.5 times momentarily.
39. Tripod Mount Screw
Use this screw to mount the camera/recorder on a tripod (generally available).
40. Camera/Recorder Control Buttons
These shaded buttons on the remote control function the same as those on the camera/recorder
41. TITLE ON/OFF Button
(only on the remote control)
Use this button to store a title in memory or recall the stored title and record it superimposed on the picture being shot.
42. A/V DUB Button
(only on the remote control)
This button is used to record new audio and video in place of existing audio and video.
43. DISPLAY Button
Use this button to select the display in the viewfinder or on the LCD monitor.
44. COUNTER RESET Button
(only on the remote control)
Press this button to reset the linear time counter in the viewfinder or on the LCD monitor to "0:00:00".
9

Other models:

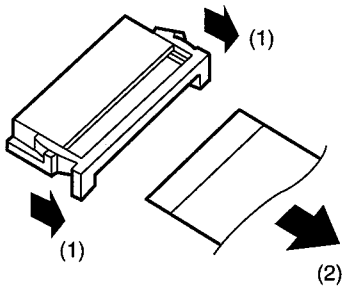
There is no difference in operation method, except the item in following table.

	Not included	Included	Not included		Included		
	VM-E553LE	VM-E555LE	VM-E558LE	VM-E658LE	VM-H755LE	VM-H855LE	VM-H955LE
System	Normal 8	Normal 8	Normal 8	Normal 8	Hi-8	Hi-8	Hi-8
Audio	Monaural	Monaural	Monaural	Monaural	Stereo	Stereo	Stereo
Microphone	Monaural type	Monaural type	Monaural type	Monaural type	Stereo type	Stereo type	Stereo type
LCD monitor size	2.5-inch	2.5-inch	2.5-inch	3.0-inch	2.5-inch	3.0-inch	3.5-inch
Active light	No	No	No	Yes	No	Yes	Yes
Active light switch	No	No	No	Yes	No	Yes	Yes
Program AE	Auto	Auto	Auto	Auto/ Mode select	Auto/ Mode select	Auto/ Mode select	Auto/ Mode select
Program AE Dial	No	No	No	Yes	Yes	Yes	Yes
E.I.S	No	Yes	No	Yes	Yes	Yes	Yes
E.I.S switch	No	Yes	No	Yes	Yes	Yes	Yes

CHAPTER 2 DISASSEMBLY

1. BEFORE STARTING DISASSEMBLY

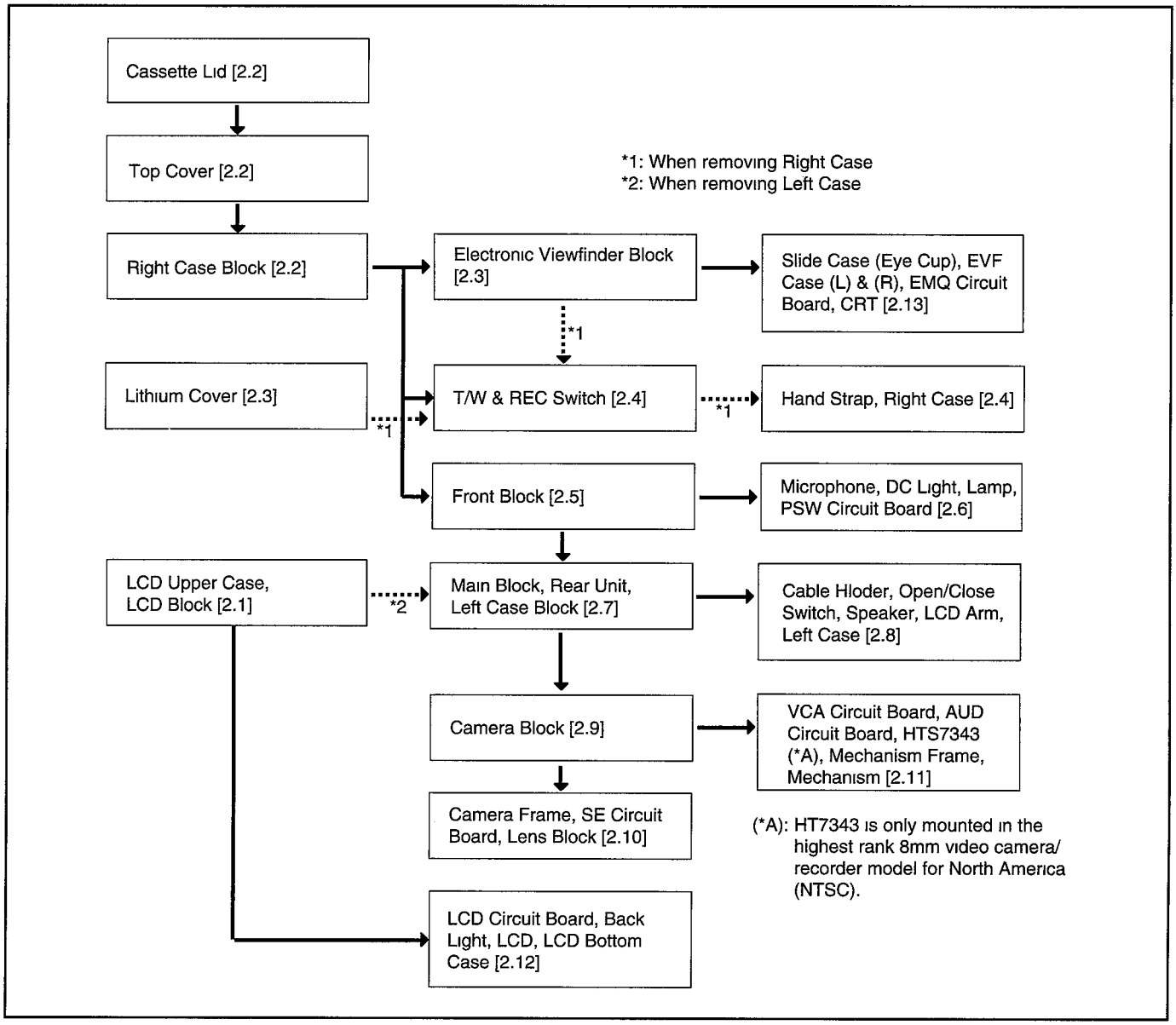
(1) This camera/recorder must basically be dismantled in the unloading stop state.
To manually set the mechanism to the unloading stop state, refer to "3. Method for Manual Unloading".
(2) This camera/recorder will not perform the eject operation unless the LCD monitor is open.
(3) Dismantle each component according to "1.1 Disassembly Procedure".
(4) For reassembly, perform the reverse procedure to disassembly when not otherwise specified.
(5) Be sure not to disassemble the lens block.
(6) Disconnect flat cables from connectors by the procedure shown in Fig. 1-1. Since many circuit boards in the camera/recorder are connected by in-board connectors, be sure to follow DISASSEMBLY when removing the circuit boards.



(1) Release the lock of the connector on the left and right simultaneously.
(2) Pull out the flat cable.

Fig. 1-1

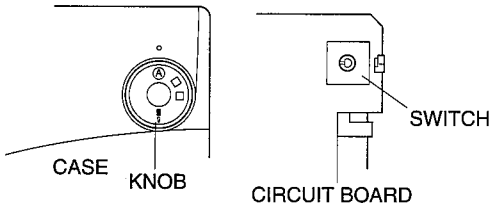
1.1 Disassembly Procedure


Cassette Lid [2.2]
Top Cover [2.2]
Right Case Block [2.2]
Lithium Cover [2.3]
Electronic Viewfinder Block [2.3]
T/W & REC Switch [2.4]
Front Block [2.5]
LCD Upper Case, LCD Block [2.1]
Main Block, Rear Unit, Left Case Block [2.7]
Camera Block [2.9]
Camera Frame, SE Circuit Board, Lens Block [2.10]
LCD Circuit Board, Back Light, LCD, LCD Bottom Case [2.12]
Slide Case (Eye Cup), EVF Case (L) & (R), EMQ Circuit Board, CRT [2.13]
Hand Strap, Right Case [2.4]
Microphone, DC Light, Lamp, PSW Circuit Board [2.6]
Cable Hloder, Open/Close Switch, Speaker, LCD Arm, Left Case [2.8]
VCA Circuit Board, AUD Circuit Board, HTS7343 (*A), Mechanism Frame, Mechanism [2.11]
*1
*1
*1
*2
*1: When removing Right Case
*2: When removing Left Case
(*A): HT7343 is only mounted in the highest rank 8mm video camera/recorder model for North America (NTSC).

2. CASES AND CIRCUIT BOARDS (MECHANISM BLOCK) REMOVAL

2.1 LCD Upper Case, LCD Block (Fig. 2-1)

Notes: 1. Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
2. Handle the LCD panel and backlight with extreme care.



Reinstallation procedure and caution:

1. Be careful of the position of program AE rotary switch when reinstalling the LCD upper case. (Make sure that the switch on the circuit board and the knob on the case are set to the positions shown in Fig. 2-1.)

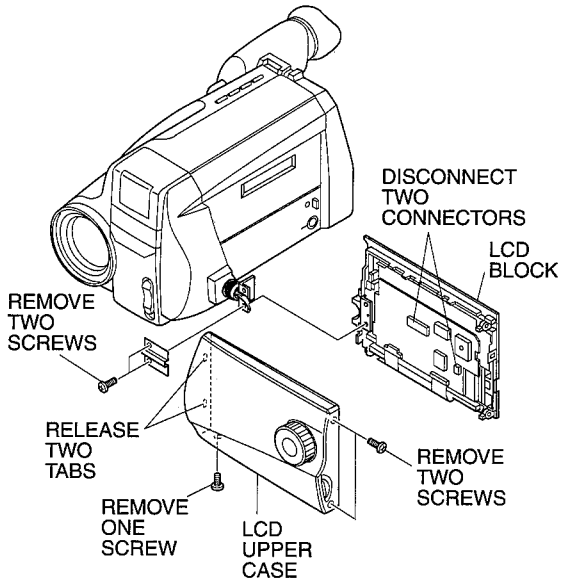


Fig. 2-1

2.2 Cassette Lid, Top Cover, Right Case Block (Figs. 2-2, 2-3)

■ Top Cover Removal

(1) Insert a flat-bladed screwdriver between the top cover and subchassis, and push section (B) of the plate spring in the direction of arrow (C), to remove the top cover in the direction of the arrow. (See Figs. 2-2, 2-3)

Reinstallation procedure and caution:

1. To install the cassette lid, first engage sections (A) with the cassette holder.

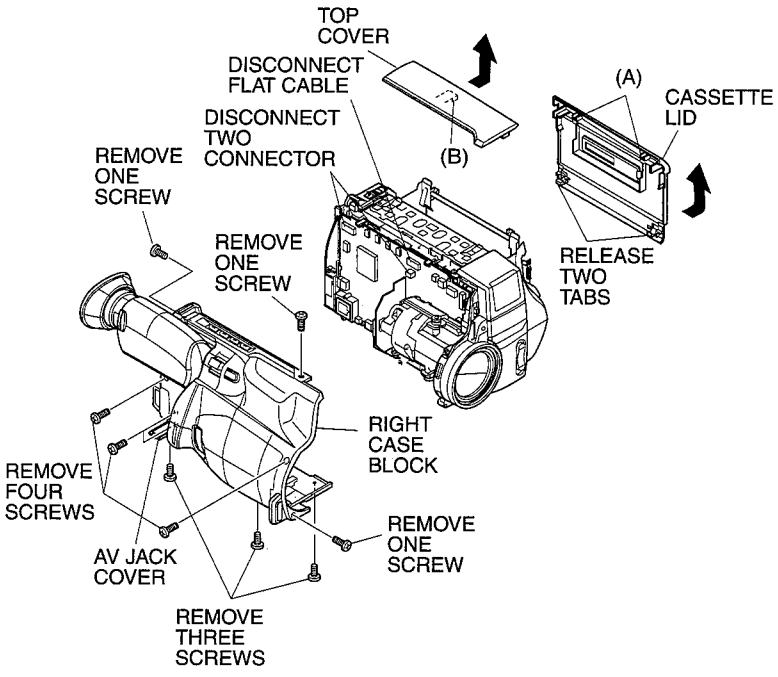


Fig. 2-2

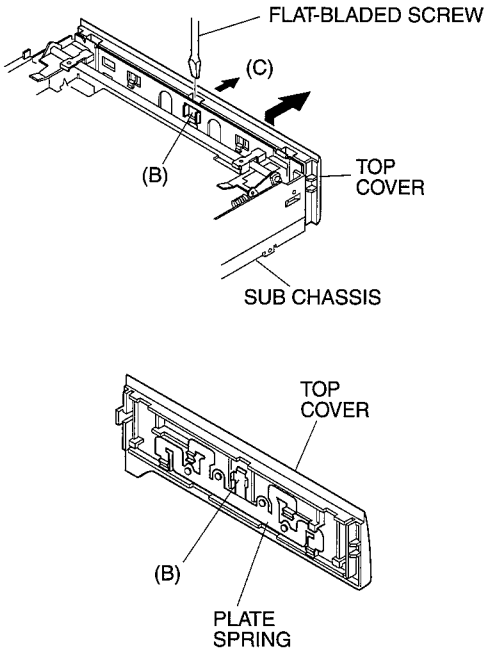


Fig. 2-3

2.3 Electronic Viewfinder (EVF) Block, Lithium Cover (Fig. 2-4)

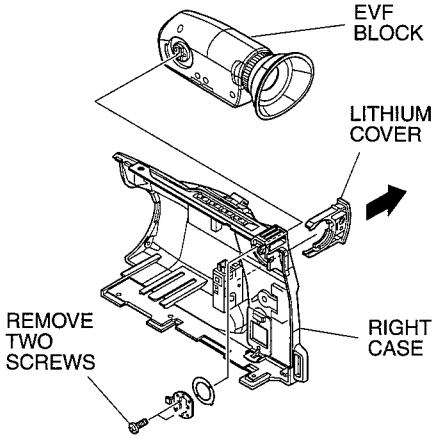


Fig. 2-4

2.4 T/W & REC Switch, Hand Strap, Right Case (Fig. 2-5)

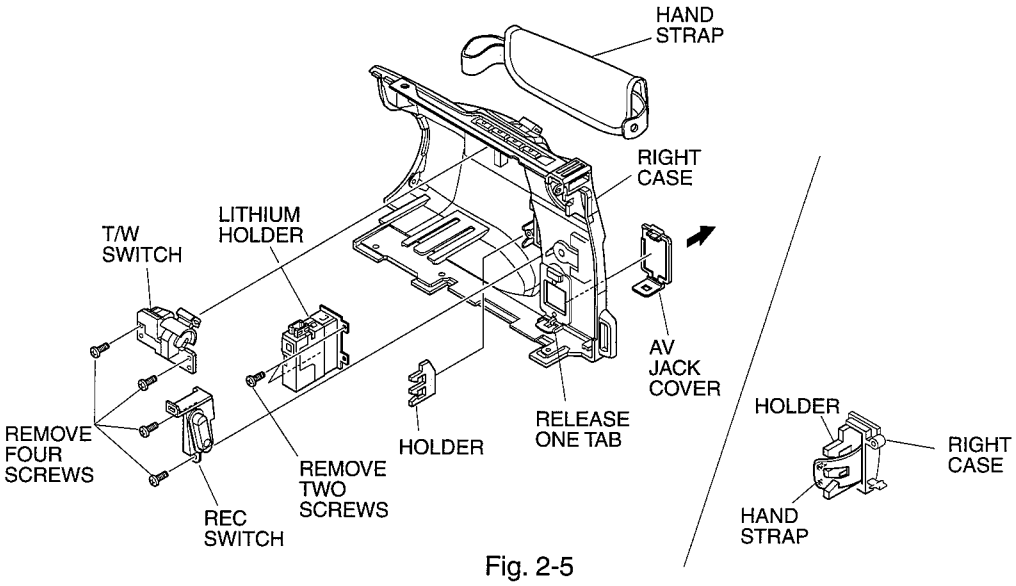
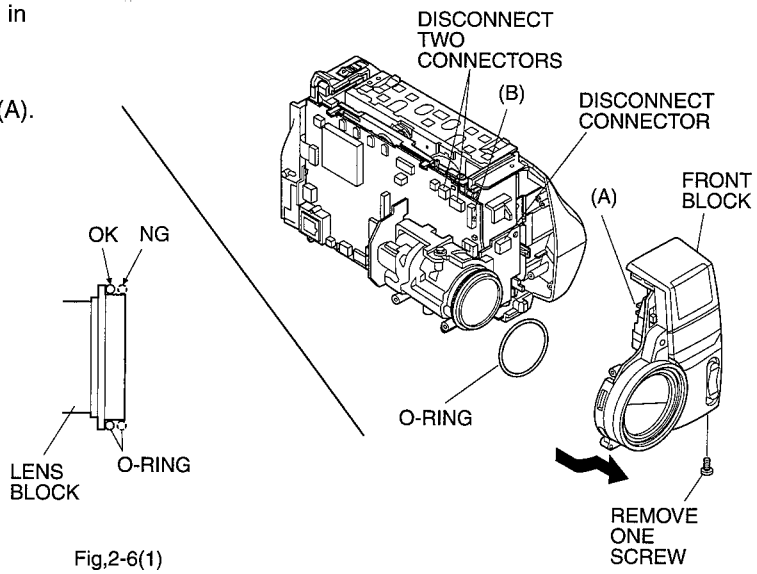


Fig. 2-5

2.5 Front Block (Fig. 2-6)

Reinstallation procedure and caution:

1. The O-ring must be installed in the position shown in Fig. 2-6(1).
2. When installing the front block, make sure of engagement between switch (B) and switch knob (A).



Fig,2-6(1)

Fig. 2-6

2.6 Microphone (MIC), DC Light, Lamp, PSW Circuit Board (Fig. 2-7)

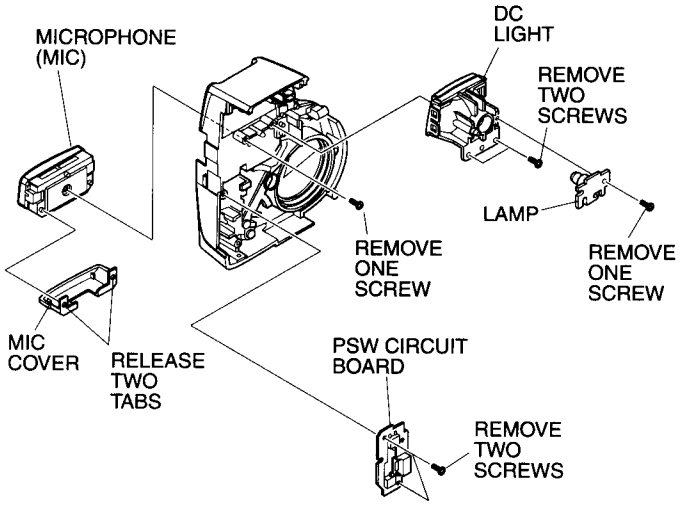


Fig. 2-7

2.7 Main Block, Rear Unit, Left Case Block (Fig. 2-8)

Reinstallation procedure and caution:

1. Connect connectors (A) and (B) securely.

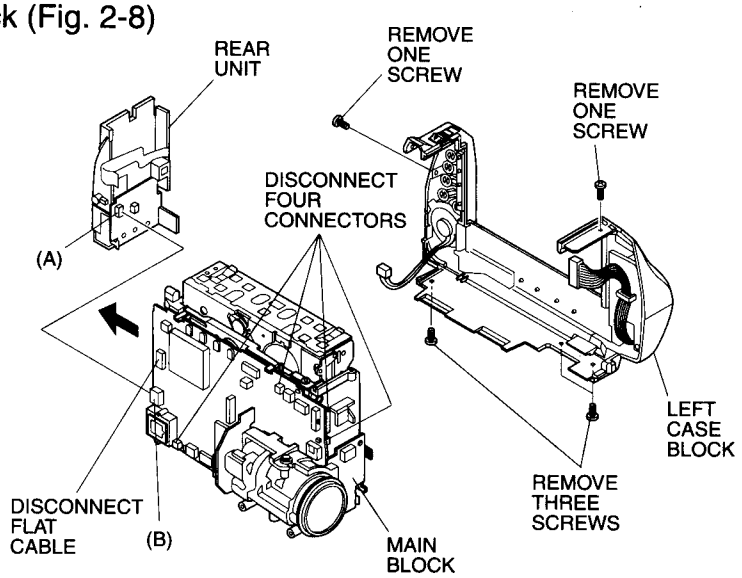


Fig. 2-8

2.8 Cable Holder, Open/Close Switch, Speaker, LCD Arm, Left Case (Fig. 2-9)

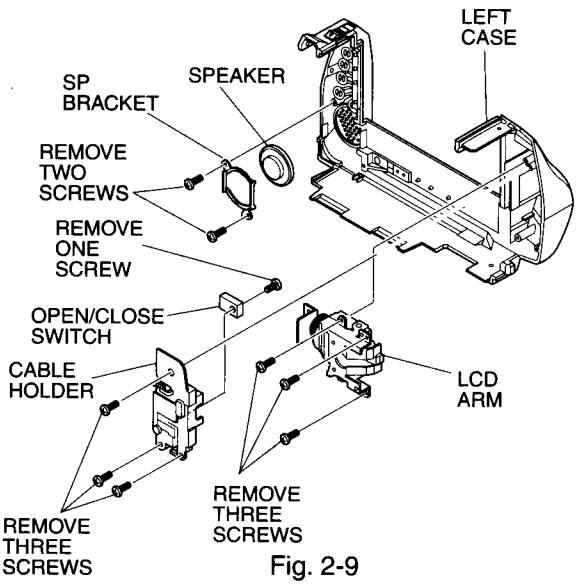


Fig. 2-9

2.9 Camera Block (Fig. 2-10)

Reinstallation procedure and caution:

1. Connect connectors (A) and (B) securely.

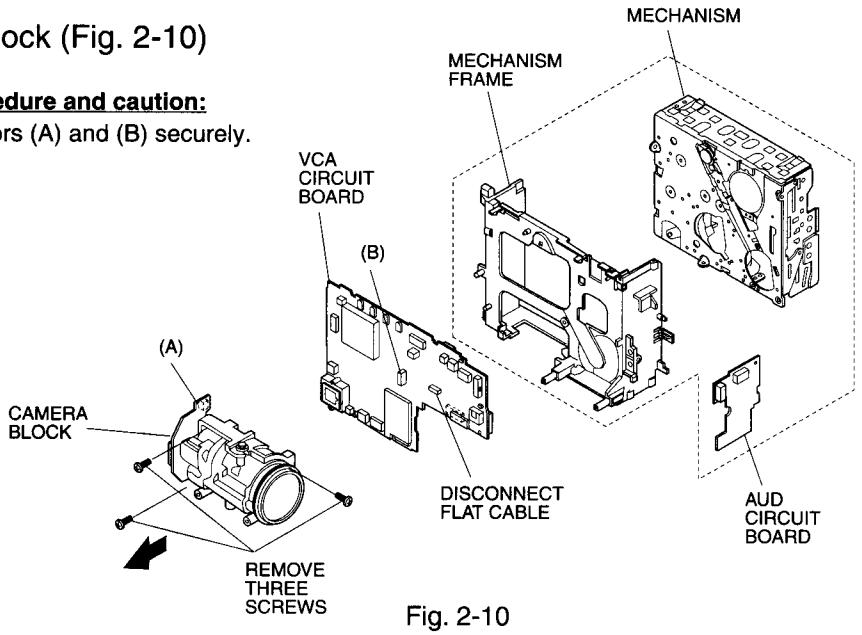


Fig. 2-10

2.10 Camera Frame, SE Circuit Board, Lens Block (Fig. 2-11)

Note: Be careful not to damage the crystal filter.

Reinstallation procedure and caution:

1. The crystal filter is non-directional.
2. Fit in the CCD image sensor parallel to the SE board, fix it with screws, and then solder it.

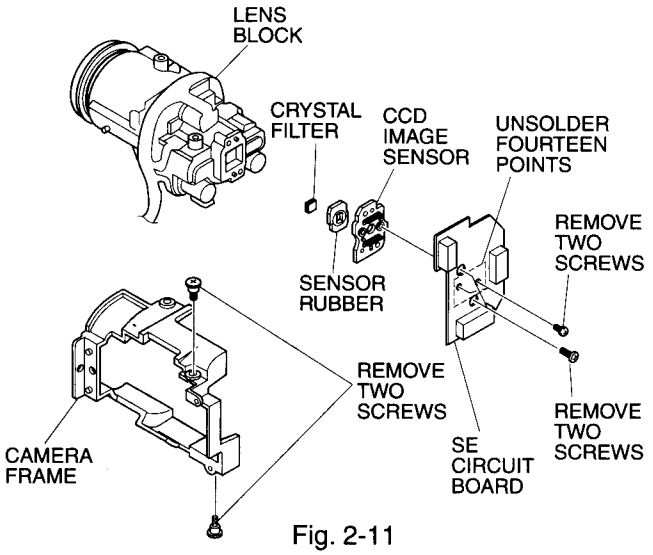


Fig. 2-11

2.11 VCA Circuit Board, AUD Circuit Board, HTS7343 (*1), Mechanism Frame, Mechanism (Fig. 2-12)

Reinstallation procedure and caution:

1. Connect connectors (A) and (B) securely.
2. Connect connectors (C) and (D) securely.

(*1): HT7343 is only mounted in the highest rank 8mm video camera/recorder model for North America (NTSC).

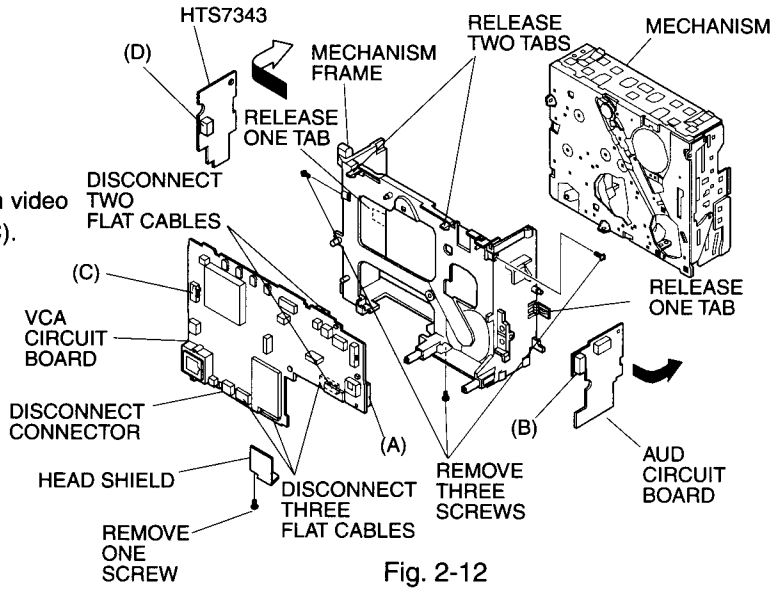


Fig. 2-12

2.12 LCD Circuit Board, Back Light, LCD, LCD Bottom Case (Fig. 2-13)

Notes: 1. Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
2. Handle the LCD panel and backlight with extreme care.

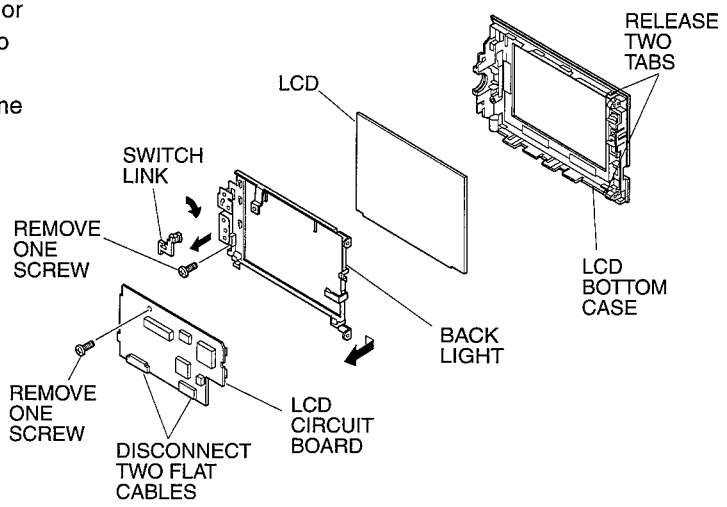


Fig. 2-13

2.13 Slide Case (Eye Cup), EVF Case (L) & (R), EMQ Circuit Board, CRT (Fig. 2-14)

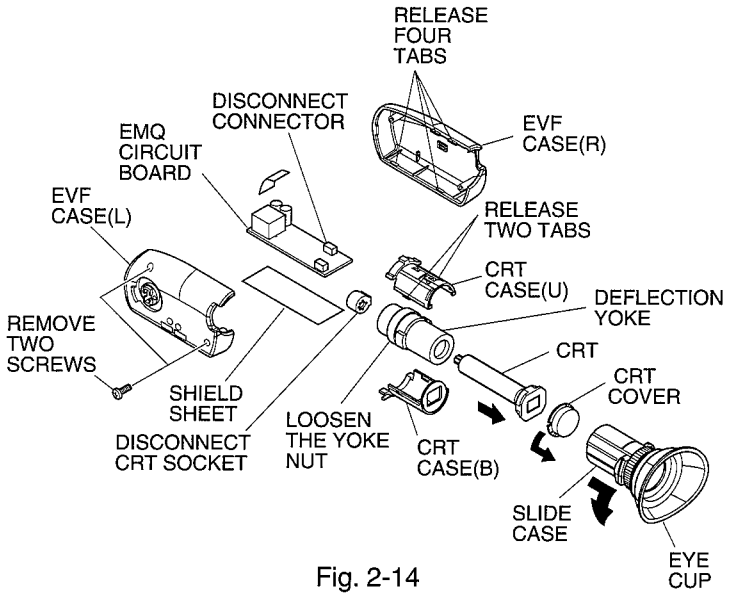


Fig. 2-14

3. METHOD FOR MANUAL UNLOADING

CAUTION :

Perform this procedure for emergency only when normal unloading is not possible because the electrical circuits or loading motor is defective.

(1) Open the LCD monitor. (See Figs. 3-1, 3-2)
[Or, remove the LCD block, referring to Fig. 2-1.]
(2) Lift the top cover at the right side (near the section of the arrow), to provide a gap. (See Fig. 3-1)
(3) Insert a flat-bladed screwdriver into section (A), and jump the plate spring to release the top cover in the direction of the arrow. (See Figs. 3-1, 3-2)
(4) Remove the right case block. (See Fig. 2-2)
(5) Disconnect connector (CN905) from PG905 on the VCA board, and short pins 1 and 2 of PG905. (See Fig. 3-3)
(6) Disconnect connector (CN604) from PG604 on the VCA board, and supply 4V DC to CN604 (directly to the loading motor), by connecting the positive terminal to brown wire, and negative terminal to the red wire, for unloading.

Notes: 1. If tape is loaded, also turn the capstan motor manually to take up the tape.
2. Connecting CN604 red wire (+) and brown wire (-) results in loading.

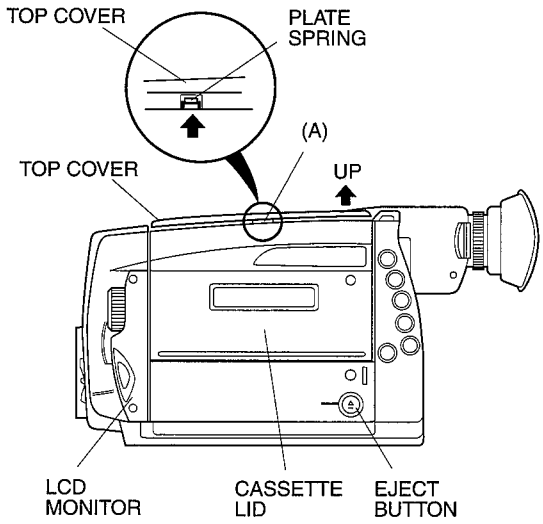


Fig. 3-1

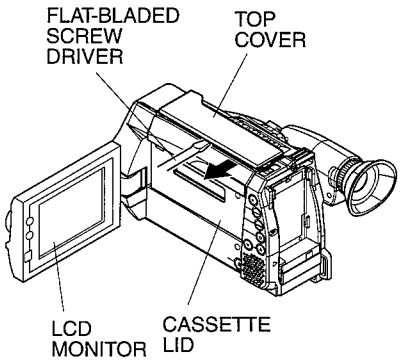


Fig. 3-2

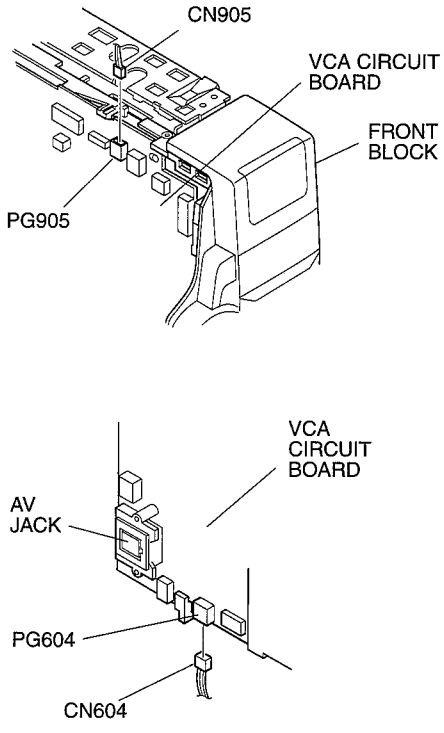


Fig.3-3

If unloading does not occur even when 4V DC is directly supplied to the loading motor, perform the following procedure:

(7) Remove the front block and rear unit. (SeeFig. 2-6)
(8) Remove the camera block. (See Fig. 2-10)
(9) Remove the VCA circuit board and mechanism frame. (See Fig. 2-12)
(10) Remove 7 screws holding the left case and remove the main block in the direction of the arrow from the left case. (See Fig. 3-4)
(11) Remove the cassette lid. (See Fig. 2-2)
(12) Release 2 tabs and pull out the loading motor from the loading motor holder. (See Fig. 3-5)

Note: The above removal is different from normal removal. In normal circumstances, remove the loading motor assembled with the loading motor holder. (The loading motor and loading motor holder comprise an assembly.)

(13) Turn over the mechanism.

Note: Do not turn over with the idler cover removed.

(14) Use a flat-bladed screwdriver, etc. to turn cam gear (A) or cam gear (B) in the directions of the arrows.

Notes: 1. Be careful not to damage the cam gears.
2. If tape is loaded, also turn the capstan motor manually to take up the tape.

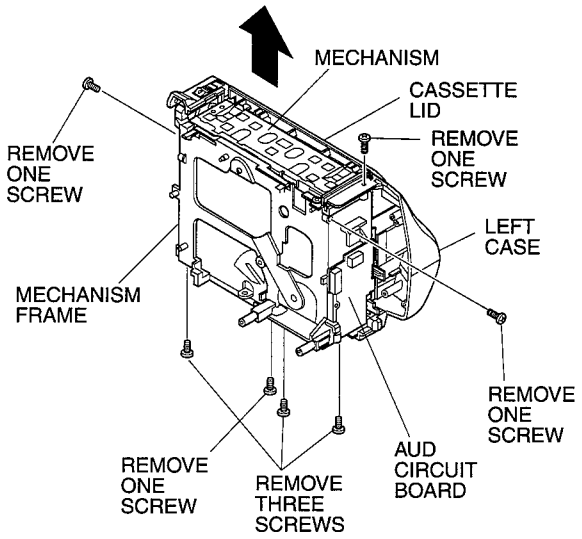


Fig.3-4

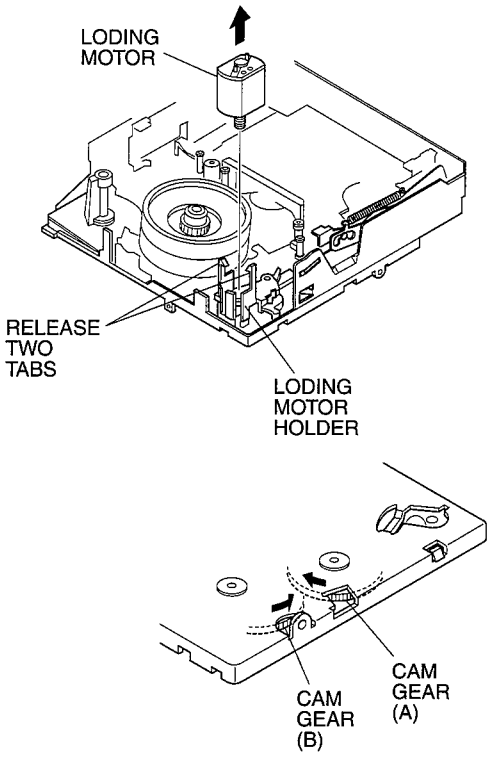


Fig.3-5

CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMANT

Trademark
MS-DOS is a registered trademark of Microsoft Corporation.

Abbreviation
MAP: Digital adjustment program for the camera.
DSP: Digital signal processor

Before Starting Adjustment
Set the DATE of the camera/recorder.

1. CONNECTION FOR ADJUSTMENT

Notes: 1. Perform the camera section adjustment and system control/servo circuit adjustment in VCR section using a personal computer.
2. It is not necessary to remove cases for camera section and system control/servo circuit adjustments.
3. The ODC DC cord is a jig which is to be used in the Power Shut Off Level (ODC) Adjustment. For other adjustments, the AC adapter can be used as a power supply.

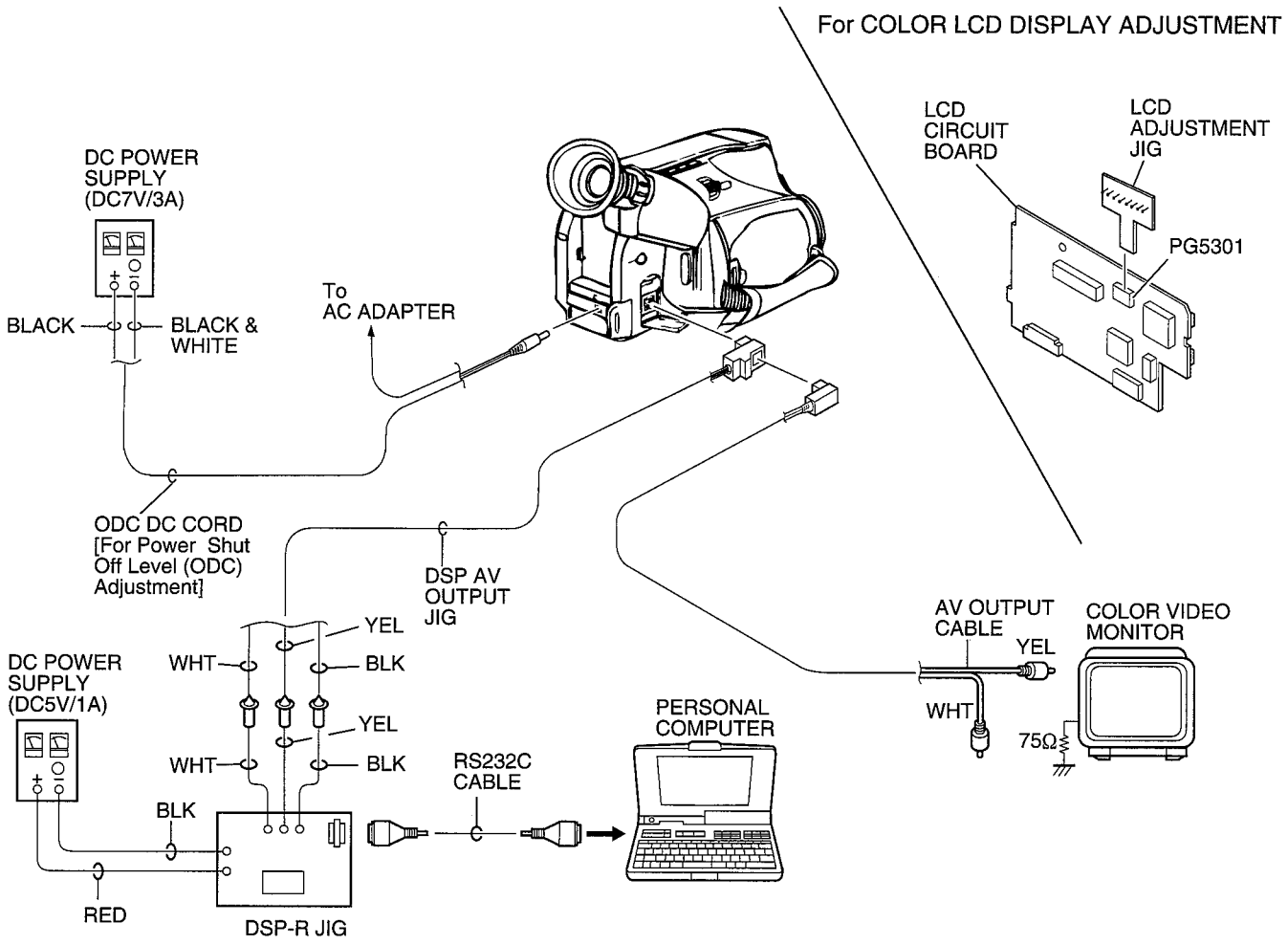


Fig. 1-1 Connection for adjustment

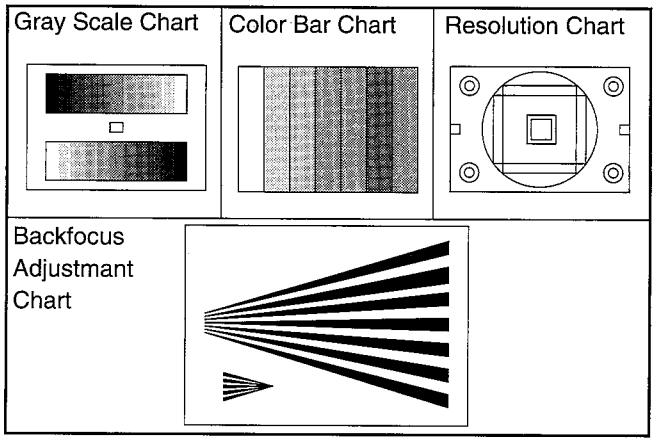
2. CAMERA SECTION ADJUSTMENT

2.1 Test Equipment Necessary for Adjustment

Oscilloscope (dual trace) [& Vectorscope]
Digital Voltmeter (DVM)
Color Video Monitor
Adjustment Floppy Disk
Personal Computer
Personal Computer 9-pin or 25-pin (RS232C) Cable
DSP-R Jig
DSP AV Output Jig
LCD Adjustment Jig
Light Box (3100°K)
Light Balancing Filter C12
DC Power Supply (DC7V/3A)
DC Power Supply (DC5V/1A)

2.2 List of Charts for Camera Adjustment

Table 2-1



2.3 Adjustment Condition

1. Check that the VCR section has been adjusted correctly before adjusting the camera section.
2. Use a light box with minimum flickering. Control the color temperature of the light box strictly.
3. When using the video out (AV OUT) to perform adjustment, be sure to terminate the AV OUT jack with 75 ohms.
4. Place the light box approx. 30cm away from the camera (lens surface) when otherwise not specified.
5. Point the camera at the chart to full the video period when otherwise not specified.
6. Use the 10:1 probe of the oscilloscope when otherwise not specified.
7. When "Trigger the oscilloscope internally" is specified, set the time base of the oscilloscope to 10μs/div.

2.4 Preset Positions of Switches and Controls During Adjustment

CAM/OFF/VIDEO switch ..... "CAM" position
INST. ZOOM ..... Not Display mode
DATE ..... Not Display mode
DISPLAY ..... Not Display mode
TITLE ..... Not Display mode
FOCUS ..... Autofocus mode
E.I.S ..... OFF mode
16 x 9 ..... OFF mode
FADE ..... OFF mode

Caution

1. Since the adjustment program is subject to change for improvements, computer displays may be different from those shown in this manual. In such cases, follow the computer displays for adjustment.
2. The computer displays may be different from those shown in this manual, depending on the destination of models and whether or not certain functions are provided. In such cases, follow the computer displays for adjustment.

2.5 Check After Replacing Major Components in the Camera Section

After replacing major components, perform adjustments, referring to the table below.
The following table shows the minimum adjustments required after major components are replaced.
The table below may not apply when several components are replaced, depending on the symptom of the defect.

Caution: When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.6.3 Initial Setting by Model" then perform all the camera section and system control/servo circuits adjustments.

Table 3-2

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS									
		SE Circuit Board	VCA Circuit Board	IC1001	IC1102	IC1104	IC1105	IC1201	IC1401 IC1402 IC1403	Lens Block	
INITIAL SETTING BY MODEL			●				●				
ELECTRIC VOLUME ADJUSTMENT PROCEDURE											
(1)	CDS Smpling Pulse Adjustment		●		●		●				
DIGITAL ADJUSTMENT PROCEDURE											
(1)	Auto Iris Control Adjustment	●	●	●		●	●	●		●	
(2)	Matrix Adjustment	●	●	●			●				
(3)	White Balance Adjustment	●	●	●			●				
(4)	Chroma Gain Adjustment	●	●	●			●				
AUTOFOCUS ADJUSTMENT PROCEDURE											
(1)	Zoom Trace Adjustment	●	●				●			●	
(2)	AF Noise Level Adjustment	●	●				●			●	
STABILIZER ADJUSTMENT PROCEDURE		●	●				●		●		
SPOT NOISE ADJUSTMENT PROCEDURE		●	●				●				

2.6 Adjustment Procedure

Notes: 1. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.
2. The following describes an example of the instructions of the personal computer and the menu display; they are different depending on the personal computer manufacturer and model. Refer to the instruction manual of personal computer.
3. When the error message appears during adjustment, refer to "4. Error Message". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.

2.6.1 Connections for Adjustment

Connect the camera/recorder, DSP jig, personal computer, power supply, etc. as shown in Fig. 1-1.
Check that the camera/recorder is turned on.

2.6.2 How to Start the MAP

(1) Turn the personal computer on and start the MS-DOS system.

Note: Refer to the instruction manual of the personal computer for how to start computer.

(2) Load the adjustment floppy disk in to disk drive A and press **A:** [ENTER]. (Display 2-1)

(3) Press **MAP_IBM** [SPACE] **1** [ENTER]. (Display 2-2)

Note: When you use a personal computer with two serial interface connectors and connect the DSP jig to serial interface connector 2, press MAP_IBM 2.

(4) Select the number accodding to the model. (Display 2-3)
If [ESC] (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.

Notes: 1. If the required model is not found, press the **P** key and select the model from the next screen.
2. If you select number without a model name by mistake, the message shown in "MESSAGE WHEN OPERATED BY MISTAKE" will appear in the computer's display (Display 2-4). Press any key to return the display to MODEL SELECT dispaly.

(5) Press **Y** key. (Display 2-5)
If **N** key is pressed, the computer's display returns to MODEL SELECT display.

(6) Refer to display 2-6.

2.6.3 Initial Setting by Model

Before Starting Initial Setting

1. This item describes how to initialize the EEP ROM. Be sure to perform this item after replacing EEP ROM or the VCA circuit board.
   When other components are replaced, normally, it is not necessary to initialize the EEP ROM.
2. Be sure to perform the following adjustments after completing the initial setting.
   - 2.6.4 Electric Volume Adjustment Procedure
   - 2.6.5 Digital Adjustment Procedure
   - 2.6.6 Autofocus Adjustment Procedure
   - 2.6.7 Stabilizer Adjustment Procedure
   - 2.6.8 Spot Noise Adjustment Procedure
   - 2.8 LCD Display Adjustment
   - 3.5 System Control/Servo Circuits Adjustment

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Press **A** key.

(4) Refer to display 3-1.

(5) Press **Y** key to start.
Press **N** to return to MAIN MENU display.

(6) Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

Display & Figs

Display 2-1

```
C>A:
A>
```

Display 2-2

```
C>
A>MAP_IBM 1
```

Display 2-3

```
**********************************************
              MODEL SELECT
**********************************************
[1]          xxxxxxx
[2]          xxxxxxx
[3]          xxxxxxx
[4]          xxxxxxx
[5]          xxxxxxx
[P]          NEXT SELECTION
[ESC]        END
  Please select the type of the set.
    Press [1] - [5] or [P] or [ESC]
```

Display 2-4

MESSAGE WHEN OPERATED BY MISTAKE

```
CAN NOT FIND THE DATA FILE
**** PRESS ANY KEY ****
```

Display 2-5

```
Selected model is x x x x x x x
Are you sure ? (Y/N)
```

Display 2-6

MAIN MENU

```
**********************************************
MANUAL ADJUSTMENT PROGRAM
**********************************************
[A]          DATA INITIALIZE
[B]          ELECTRIC VOLUME
[C]          ADJUSTMENT
[D]          VCR ADJUSTMENT
[E]          AUTO FOCUS
[F]          EIS
[G]          SPOT NOISE
[H]          LCD
[ESC]        END
  Please select [A] - [H] or [ESC]
```

Display 3-1

```
« DATA WRITING »
START TO SEND DATA.  (Y/N)
```

2.6.4 Electric Volume Adjustment Procedure

Before Starting Adjstment
When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.6.3 Initial Setting By Model" then perform all the electric volume adjustments.

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Press **B** key.

(4) Refer to display 4-1.

Notes: 1. If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU display.
2. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

(1) CDS Sampling Pulse Adjustment

Purpose:
To suppress noise in the CCD sensor output signal and maximize the signal level.
Incompleted Phenomenon:
Diagonal beats and horizontal noise occur.
Condition:
Leave the camera/recorder for more than 2 minutes untill the circuits are stabilized after turing it on, then start adjustment.

Procedure:
1) Refer to display 4-1.

2) Press **1** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

2.6.5 Digital Adjustment Procedure

Before Starting Adjstment
When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.6.3 Initial Setting By Model" then perform all the digital adjustments.

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Press **C** key.

(4) Refer to display 5-1.

(5) Select the number of the required adjustment.

Notes: 1. If [ESC] (escape) is pressed, the computer's display returns toMAIN MENU display.
2. To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

Display & Figs

Display 2-6
MAIN MENU

```
**********************************************
MANUAL ADJUSTMENT PROGRAM
**********************************************
[A]      DATA INITIALIZE
[B]      ELECTRIC VOLUME
[C]      ADJUSTMENT
[D]      VCR ADJUSTMENT
[E]      AUTO FOCUS
[F]      EIS
[G]      SPOT NOISE
[H]      LCD
[ESC]    END
   Please select [A] - [H] or [ESC]
```

Display 4-1
ELECTRIC VOLUME ADJ. MENU

```
**********************************************
ELECTRIC VOLUME
**********************************************
[1]    CDS SAMPLING PULSE
[ESC]  RETURN TO MAIN MENU
   Please select [1] or [ESC]
```

Display 5-1
ADJUSTMENT MENU

```
**********************************************
ADJUSTMENT
**********************************************
[1]    AUTO IRIS CONTROL
[2]    MATRIX
[3]    WHITE BALANCE
[4]    CHROMA GAIN
[ESC]  RETURN TO MAIN MENU
   Please select [1]- [4] or [ESC]
```

(1) Auto Iris Control Adjustment

Purpose:

To set the iris control data.

Incompleted Phenomenon:

The picture becomes too bright.
The picture becomes too dark.

Condition:

Point the camera at the light box without a chart to full the screen (at wide-angle).

Procedure:

1) Refer to display 5-1.

2) Press **1** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

3) Refer to display 5-2.

4) Press any key to return to ADJUSTMENT MENU display.

5) Turn the power off for 5 seconds and then on again.

(2) Matrix Adjustment (Fig. 2-1)

Purpose:

To compensate for uneveness in the chroma signal.

Incompleted Phenomenon:

Color reproduction becomes defective.

Equipment/Jig:

Oscilloscope

Test Point:

Video Out (AV OUT)

Condition:

Attach a C12 filter.
Point at a color bar chart.

Procedure:

1) Refer to display 5-1.

2) Press **2** key.

3) Refer to display 5-3.

4) *Model EA:*
Press the **D** key to minimize the yellow (YEL) level.
Press the **U** key so the ratio between yellow (YEL) and blue (BLU) levels is 3:8.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the ratio between yellow (YEL) and blue (BLU) levels is 3:8.

Model HA:
Press the **D** key to minimize the yellow (YEL) level.
Press the **U** key so the ratio between yellow (YEL) and blue (BLU) levels is 1:6.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the ratio between yellow (YEL) and blue (BLU) levels is 1:6.

Model EE:
Press the **D** key to minimize the yellow (YEL) level.
Press the **U** key so the ratio between yellow (YEL) and blue (BLU) levels is 1:2.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the ratio between yellow (YEL) and blue (BLU) levels is 1:2.

Display & Figs

Display 5-1

ADJUSTMENT MENU

```
**********************************************
                ADJUSTMENT
**********************************************
 [1]    AUTO IRIS CONTROL
 [2]    MATRIX
 [3]    WHITE BALANCE
 [4]    CHROMA GAIN
 [ESC]  RETURN TO MAIN MENU
    Please select [1]- [4] or [ESC]
```

Display 5-2

```
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Display 5-3

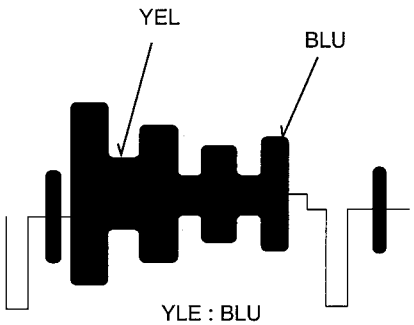
```
« ADJUSTMENT OF BLUE MATRIX »
        ROUGH ADJUSTMENT
  [U]           UP
  [D]           DOWN
        FINE ADJUSTMENT
  [Ctrl] + [U]  UP
  [Ctrl] + [D]  DOWN
  [ENTER]       RETURN TO MENU
  [ESC]         QUIT
```

Display 5-4

```
« ADJUSTMENT OF BLUE MATRIX »
DATA WRITING TO EEPROM
```

Display 5-5

```
« ADJUSTMENT OF BLUE MATRIX »
ADJUSTMENT FINISHED
PRESS ANY KEY
```



YLE : BLU

Model EA: 3 : 8
Model HA: 1 : 6
Model EE: 1 : 2
Model HE: 2 : 5

Fig. 2-1

Model HE:

Press the **D** key to minimize the yellow (YEL) level.
Press the **U** key so the ratio between yellow (YEL) and blue (BLU) levels is 2:5.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the
ratio between yellow (YEL) and blue (BLU) levels is 2:5.

5) Press [Enter] key, and the display change as 5-4 and 5-5.

6) Press any key to return to ADJUSTMENT MENU display

(3) White Balance Adjustment

Purpose:

To set white balance under the color temperature which becomes a reference for the auto white balance circuit.

Incompleted Phenomenon:

Color of the subject is different from that of the picture.
A white subject is not seen as white.

Test Point:

Video Out (AV OUT)

Condition:

Attach a C12 filter.
Point at a gray scale chart (at wide-angle).

Procedure:

1) Refer to display 5-1.

2) Press **3** key.

3) Refer to display 5-6.

4) *Model EA:*
Press **1 9** to input the data.
Model HA:
Press **1 6** to input the data.
Model EE:
Press **1 3** to input the data.
Model HE:
Press **1 A** to input the data.

5) Press [Enter] key, and the display changes as follows.

6) Refer to display 5-7.

7) *Model EA:*
Press **0** (ZERO) **B** to input the data.
Model HA:
Press **0** (ZERO) **D** to input the data.
Model EE:
Press **1 0** (ZERO) to input the data.
Model HE:
Press **1 7** to input the data.

8) Press [Enter] key.
Perform adjustment according to the computer displayhereafter.
See "4. Error Messages" if an error message appears on the computer display.

Display & Figs

Display 5-1

ADJUSTMENT MENU

```
**********************************************
                ADJUSTMENT
**********************************************
 [1]    AUTO IRIS CONTROL
 [2]    MATRIX
 [3]    WHITE BALANCE
 [4]    CHROMA GAIN
 [ESC]  RETURN TO MAIN MENU
     Please select [1]- [4] or [ESC]
```

Display 5-6

```
« WHITE BALANCE ADJUSTMENT »
 INPUT DATA OF OFFSET
                    FOR R-B --> 00
```

Display 5-7

```
« WHITE BALANCE ADJUSTMENT »
 INPUT DATA OF OFFSET
                    FOR Mg-G  --> 00
```

(4) Chroma Gain Adjustment (Figs. 2-2, 2-3, 2-4)

Purpose:

To set the color saturation under the reference color temperature.

Incompleted Phenomenon:

Color of the picture is denser than that of the subject.
Color of the picture is lighter than that of the subject.

Equipment/Jig:

Oscilloscope (Vectorscope)

Test Point:

Video Out (AV OUT)

Condition:

Attach a C12 filter.
Point at a color bar chart.

Procedure:

1) Refer to display 3-5.

2) Press **4** key.

3) Rerer to dispaly 5-8.

4) *WhenUsing an Oscilloscope:*
Press the **U** and **D** keys to set the red level to around 450mVp-p.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red level is 450mV ± 20mVp-p. (Fig. 2-2)

When Using a Vectorscope:
Press the **U** and **D** keys to set the red vector to around 160% of the burst.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red vector is 160% ± 5%. (Figs. 2-3, 2-4)

5) Press [Enter] key, and the display changes as 5-9 and 5-10.

6) Press any key to return to ADJUSTMENT MENU display.

2.6.6 Autofocus Adjustment Procedure

Before Starting Adjustment
Be sure to perform this adjustment after replacing or initializing the lens block or VCA circuit board (EEPROM).

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Press **E** key.

(4) Refer to display 6-1.

(5) Select the number of the required adjustment.

Note: To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

Display & Figs

Display 5-8

```
« ADJUSTMENT OF CHROMA GAIN »
        ROUGH ADJUSTMENT
[U]       CHROMA GAIN UP
[D]       CHROMA GAIN DOWN
        FINE ADJUSTMENT
[Ctrl] + [U]CHROMA GAIN UP
[Ctrl] + [D]CHROMA GAIN DOWN
[ENTER]  SAVE & RETURN TO MENU
[ESC]     QUIT
```

Display 5-9

```
« ADJUSTMENT OF CHROMA GAIN »
  DATA WRITING INTO EEPROM.
```

Display 5-10

```
« ADJUSTMENT OF CHROMA GAIN »
    ADJUSTMENT FINISHED.
      PRESS ANY KEY.
```

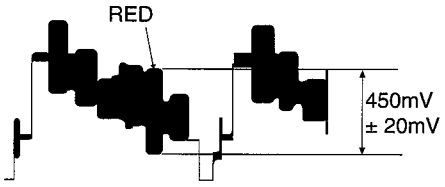


Fig. 2-2

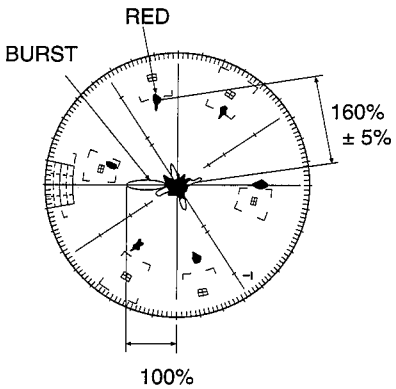


Fig. 2-3 [Model EA, HA]

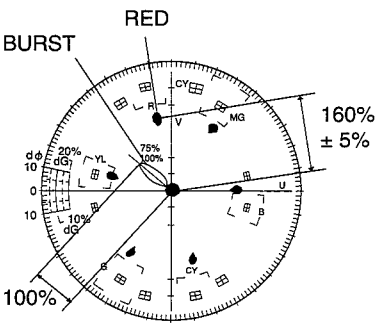


Fig. 2-4 [Model EE, HE]

Display 2-6

MAIN MENU

```
**********************************************
      MANUAL ADJUSTMENT PROGRAM
**********************************************
[A]        DATA INITIALIZE
[B]        ELECTRIC VOLUME
[C]        ADJUSTMENT
[D]        VCR ADJUSTMENT
[E]        AUTO FOCUS
[F]        EIS
[G]        SPOT NOISE
[H]        LCD
[ESC]      END
  Please select [A] - [H] or [ESC]
```

Display 6-1

AF ADJ. MENU

```
**********************************************
      AUTO FOCUS ADJUSTMENT
**********************************************
[1]   ADJUSTMENT OF ZOOM/
                FOCUS TRACKING
[2]   ADJUSTMENT OF
                AF NOISE LEVEL
[ESC] RETURN TO MENU
  Please select [1], [2] or [ESC]
```

(1) Zoom Trace Adjustment

Purpose:

To set the out-of-focus correction level during zooming.

Incompleted Phenomenon:

Focus is lost during zooming.

Equipment/Jig:

Color Video Monitor
Backfocus Chart

Test Point:

Video Out (AV OUT)

Condition:

Point at the backfocus chart, 1500 ± 5 mm away from the lens surface.
Light the chart with 200-400 lux.

Caution When Adjustment:

1) Measure the distance between the chart and lens surface precisely.
2) Place the chart as parallel as possible to the lens surface.
3) The backfocus chart should always be at the center of the monitor screen when the zoom is set to the wide-angle and telephoto ends.
4) The zoom trace adjustment procedure is completed within 2 minutes after it is selected.
5) Do not place any obstruction between the lens and chart during adjustment.

Procedure:

1) Refer todisplay 6-1.

2) Press **1** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

(2) AF Noise Level Adjustment

Purpose:

To set the noise level in the autofocus circuit.

Incompleted Phenomenon:

It takes time until a subject is brought into focus.
Correct focus is not obtained.

Equipment/Jig:

Color Video Monitor

Test Point:

Video Out (AV OUT)

Condition:

Set the focus to AUTO.
Point at a light box without a chart inserted at a distance of up to 10cm.

Caution When Adjustment:

1) Place the light box as parallel as possible to the lens surface.
2) The AF noise level adjustment procedure will be completed within thirty seconds after it is selected.

Procedure:

1) Refer todisplay 6-1.

2) Press **2** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

Display & Figs

Display 6-1

AF ADJ. MENU

```
**********************************************
     AUTO FOCUS ADJUSTMENT
**********************************************
[1]    ADJUSTMENT OF ZOOM/
                FOCUS TRACKING
[2]    ADJUSTMENT OF
                AF NOISE LEVEL
[ESC] RETURN TO MENU
     Please select [1], [2] or [ESC]
```

2.6.7 Stabilizer Adjustment Procedure

Before Starting Adjustment

1. Be sure to perform this adjustment after replacing or initializing the SE circuit board and VCA circuit board (EEPROM).
2. This item describes how to rewrite the stabilizer data. The average of the stabilizer data will be written.

(1) Start the MAP.

(2) Refetr to display 2-6.

(3) Press **F** key.

(4) Refer to display 7-1.

(5) Press **Y** key.

(6) Refer to display 7-2.

(7) The stabilizer data is rewritten automatically.

(8) Press any key to return to MAIN MENU display.

Note: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

2.6.8 Spot Noise Adjustment Procedure

Before Starting Adjustment

1. The spot noise is identified as the fine white noise that appears when the lens cap is attached after the power is turn on.
2. Perform this adjustment only for products with which spot noise occurs. (However, there is no problem even if products free from spot noise are adjusted.)
3. After replacing the CCD image sensor or VCA circuit board (EEPROM), check whether or not spot noise occurs and then proceed with adjustment.

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Cap the lens.

(4) Connect the color video monitor to video out.

(5) Press **G** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

Note: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

Display & Figs

Display 2-6

MAIN MENU

```
**********************************************
MANUAL ADJUSTMENT PROGRAM
**********************************************
 [A]        DATA INITIALIZE
 [B]        ELECTRIC VOLUME
 [C]        ADJUSTMENT
 [D]        VCR ADJUSTMENT
 [E]        AUTO FOCUS
 [F]        EIS
 [G]        SPOT NOISE
 [H]        LCD
 [ESC]      END
   Please select [A] - [H] or [ESC]
```

Display 7-1

```
« DATA WRITING »
START TO SEND DATA (Y/N)
```

Display 7-2

```
FINISHED WRITING DATA.
PRESS ANY KEY
```

2.7 CRT B/W Electronic Viewfinder (EVF) Adajustment

Note: Picture appears on the EVF only when the LCD monitor is close.

2.7.1 Adjustment Procedure

(1) Deflection Yoke Position, EVF Centering Adjustment (Fig. 2-51)

Purpose:

This adjustment procedure eliminates picture tilt in the EVF display.

This adjustment centers the image observed by the camera in the EVF display.

Equipment/Jig:

EVF Display

Condition:

Aim the resolution chart

Adjustment Point:

Deflection Yoke (Deflection Yoke Position)

Centering Magnets (EVF Centering)

Procedure:

Deflection Yoke Position:

1) Loosen the deflection yoke nut.

2) Turn the deflection yoke so that the EVF picture (chart) is horizontal, matching the edges of the CRT.

Note: After adjustment is completed, tighten the deflection yoke nut.

EVF Centring:

1) Remove the locking paint from the centring magnet.

2) Adjust the centring magnets until the center of the picture viewed by the camera is positioned in the center of the EVF display.

(2) EVF Vertical Size Adjustment (Fig. 2-52)

Purpose:

This adjustment determines the vertical size of the image appearing in the EVF display.

Equipment/Jig:

EVF Dispaly

Condition:

Aim the resolution chart

Adjustment Point:

RT2003 (V.SIZE) on the EMQ Circuit Board

Procedure:

1) RT2003: Set the top and bottom edges of the chart match the top and bottom edges of the CRT.

(3) EVF Brightness Adjustment (Fig. 2-52)

Purpose:

This adjustment sets the brightness of the picture in the EVF display.

Equipment/Jig:

EVF Dispaly

Condition:

Aim the resolution chart

Adjustment Point:

RT2002 (BRIGHT) on the EMQ Circuit Board

Procedure:

1) RT2002: Set to optimize the EVF picture.

(4) EVF Focus Adjustment (Fig. 2-52)

Purpose:

This control adjusts for optimum focus of the electronic viewfinder picture.

Equipment/Jig:

EVF Dispaly

Condition:

Aim the resolution chart

Adjustment Point:

RT2001 (FOCUS) on the EMQ Circuit Board

Procedure:

1) RT2001: Set the EVF picture is clear.

Display & Figs

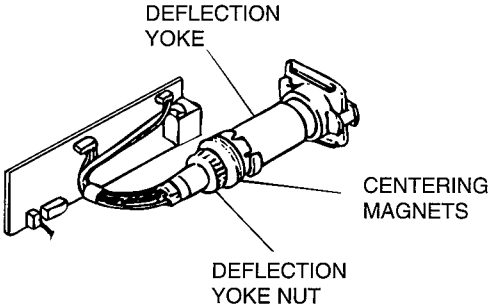


Fig. 2-51

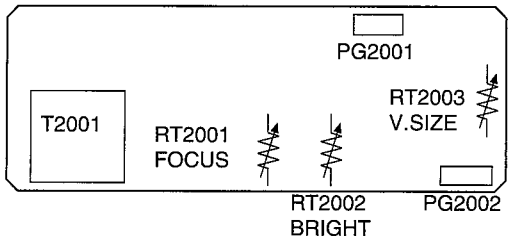


Fig. 2-52 EMQ Circuit Board (Side-B)

Procedure:

1) Refer to display 8-1.

2) Press **4** key.

3) Refer to display 8-2.

4) Press the **U** and **D** keys so the level at section (A) of the waveform is 4.0V ± 0.05Vp-p (the same level as in the RGB gain adjustment). (See Fig. 2-103)

5) After setting is completed, press the [RETURN (ENTER)] key.

(5) Sub Bright R Adjustment (Fig. 2-103)

Purpose:
To set the white balance of the LCD screen together with the sub bright B adjustment:
Incompleted Phenomenon:
White is seen as bluish or reddish.
Equipment/Jig:
Osciiloscope
Test Point:
PG5301-5
PG5301-8 (GND)
Procedure:

1) Refer to display 8-1.

2) Press **5** key.

3) Refer to display 8-2.

4) Press the **U** and **D** keys so the level at section (A) of the waveform is 4.0V ± 0.05Vp-p (the same level as in the RGB gain adjustment). (See Fig. 2-103)

5) After setting is completed, press the [RETURN (ENTER)] key.

(6) Contrast Adjustment (Fig. 2-104)

Purpose:
To adjust the maximum amplitude of RGB output:
Incompleted Phenomenon:
Contrast is abnormal.
Equipment/Jig:
Osilloscope
Test Point:
PG5301-3
PG5301-8 (GND)
Procedure:

1) Refer to display 8-1.

2) Press **6** key.

3) Refer to display 8-2.

4) Press the **U** and **D** keys so the level ats section (B) of the waveform is 2.1V ± 0.02Vp-p. (See Fig. 2-104)

5) After setting is completed, press the [RETURN (ENTER)] key.

(7) Commom Amp Gain Adjustment (Fig. 2-105)

Purpose:
To adjust the brightness of the LCD screen:
Incompleted Phenomenon:
Picture is too bright or too dark.
Equipment/Jig:
Oscilloscope

Display & Figs

Display 8-1

LCD ADJ. MENU

```
**********************************************
            LCD ADJUSTMENT
**********************************************
  [1]       PLL VCO
  [2]       H. POSITION
  [3]       RGB GAIN
  [4]       sub B
  [5]       sub R
  [6]       CONTRAST
  [7]       COM
  [8]       BURST CLEAR
  [9]       FLICKER
  [ESC]     RETURN TO MENU
    Please select [1] - [9] or [ESC]
```

Display 8-2

```
**********************************************
                  xxxxxxx
**********************************************
[U]         UP
[D]         DOWN
[RETURN] SAVE & RETURN TO MENU
[ESC]       RETURN TO MENU
  Please select  [U], [D],
                 [RETURN] or [ESC]
```

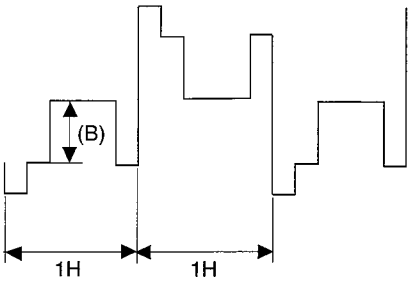


Fig. 2-104

Test Point:
PG5301-6
PG5301-8 (GND)
Procedure:

1) Refer to display 8-1.

2) Press **7** key.

3) Refer to display 8-2.

4) Press the **U** and **D** keys so the level ats section (C) of the waveform is 6.5V ± 0.2Vp-p. (See Fig. 2-105)

5) After setting is completed, press the [RETURN (ENTER)] key.

(8) Burst Cleaning Adjustment [Model EE, HE]

Purpose:
To adjust chroma phase:
Incompleted Phenomenon:
Horizontal line noise appears in the scene with high saturation.
Equipment/Jig:
Oscilloscope
Test Point:
PG5301-5
PG5301-8 (GND)
Procedure:

1) Refer to display 8-1.

2) Press **8** key.

3) Refer to display 8-2.

4) Press the **U** and **D** keys to align the R signal levels at each H. (The waveform will not stabilize unless the levels match.)

5) After setting is completed, press the [RETURN (ENTER)] key.

(9) Flicker Adjustment

Purpose:
To minimize flickering on the LCD screen:
Incompleted Phenomenon:
Flickering is present in the picture.
Condition:
Set the CAM/OFF/VIDEO switch to VIDEO position.
Load the alignment tape and it the playback (color bar section).
Procedure:

1) Refer to display 8-1.

2) *Model EA, HA:*
Press **8** key.
Model EE, HE:
Press **9** key.

3) Refer to display 8-2.

4) Press the **U** and **D** keys until the picture on the LCD screen is optimal quality.

5) After setting is completed, press the [RETURN (ENTER)] key.

Display & Figs

Display 8-1

LCD ADJ. MENU

```
**********************************************
            LCD ADJUSTMENT
**********************************************
  [1]        PLL VCO
  [2]        H. POSITION
  [3]        RGB GAIN
  [4]        sub B
  [5]        sub R
  [6]        CONTRAST
  [7]        COM
  [8]        BURST CLEAR
  [9]        FLICKER
  [ESC]      RETURN TO MENU
    Please select [1] - [9] or [ESC]
```

Display 8-2

```
**********************************************
                  xxxxxxx
**********************************************
[U]        UP
[D]        DOWN
[RETURN] SAVE & RETURN TO MENU
[ESC]      RETURN TO MENU
  Please select [U], [D],
                [RETURN] or [ESC]
```

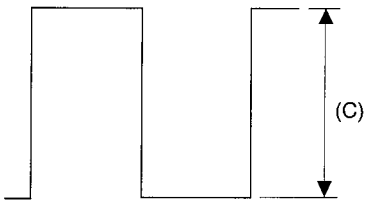
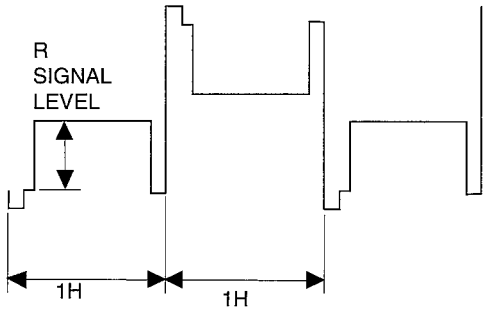


Fig. 2-105



Note: Waveform may not invert every H because of the thinning-out period.

Fig. 2-106

3. VCR SECTION ADJUSTMENT

3.1 Test Equipment and Alignment Tapes Necessary for Adjustment

Test Equipment

Digital Voltmeter (DVM)
Color Video Monitor
DC Power Supply (DC 0 - 7V/3A)
DC Power Supply (DC 5V/1A)

Alignment Tape, etc.

Adjustment Floppy Disk
Personal Computer
Personal Computer 9-pin or 25-pin (RS232C) Cable
DSP-R Jig
DSP AV Output Jig
ODC DC Cord
Alignment Tape
Blank Tape

3.2 Adjustment Condition

1. Check that the camera, LCD monitor and EVF sections has been adjusted correctly before adjusting the VCR section.
2. Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
3. Use the 10:1 probe of the oscilloscope when other not specified.
4. When "Record mode" is specified, load a blank tape and set the 8mm video camera/recorder to the record mode by the following procedure.
   1) Set the CAM/OFF/VCR switch to the CAM position.
   2) Press the REC START/STOP button on the unit (or REC START/STOP button on the remote control).
5. Earth of test equipment: Pre-Amp Shield (GND).

Caution:

1. This camera/recorder will not perform the eject operation unless the LCD monitor is open. To set it to the eject state with the case dismantled, short PG905 pins 1 and 2 on the VCA board with a shorting clip, etc., and then press the EJECT button.

3.3 Preset Positions of Switches and Controls During Adjustment

CAM/OFF/VIDEO switch ..... "VCR" position
TITLE ..... Not Display mode

3.4 Check After Replacing Major Components in the VCR Section

After replacing major components, perform checks, referring to the table below.
The following table shows the minimum adjustments required after major components are placed.
The table below may not apply when several components are replaced, depending on the symptom of the defect.

Caution: After replacing the parts, check each adjustment. If you find the items necessary to be adjusted, remove the corresponding laser trimming resistors and replace them with variable resistors for adjustment.

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS		
		VCA Circuit Board	Cylinder	IC901
SYSTEM CONTROL/SERVO CIRCUITS ADJUSTMENT				
(1)	Power Shut Off level Adjustment	●		●
(2)	Head Switching Point Adjustment	●	●	●

3.5 System Control/Servo Circuits Adjustment

Before Starting Adjustment

1. System control/servo circuits adjustment also needs a personal computer. Connect the camera/recorder, jigs, power supply, etc. in the same way as in camera section adjustment.
2. Be sure to perform this adjustment after replaceing or initializing the EEP ROM and VCA circuit board.
3. When an error message appears during adjustment, refer to "4. Error Massage".
4. If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU display.
5. To complete adjustment, pres to [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jigs.

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Press **D** key.

(4) Refer to display 9-1.

(5) Select the number of the required adjustment.

(1) Power Shut Off Level (ODC: Over Discharge Control) Adjustment

Purpose:

To set the minimum voltage required to operate the camera/recorder.

Incompleted Phenomenon:

The usable time of the battery becomes short.
The camera/recorder doesn't operate normally.

Equipment/Jig:

DVM
DC Power Supply (0 - 7V)
Blank Tape
ODC DC Cord

Condition:

Connect the camera, LCD monitor and EVF sections.
Supply power (8.0V ± 0.5V) to DC IN via ODC DC cord.
LCD monitor open. (LCD ON)
Cap the lens.
Load the brank tape.

Procedure:

1) Refer to display 9-1.

2) Press **1** key.

3) Refer to display 9-2.

4) Set the voltage of the power supply to 5.8V ± 0.05V.

5) Press any key.

6) Refer to display 9-3.

7) Press any key to return to VCR ADJ. MENU display.

Display & Figs

Display 2-6

MAIN MENU

```
**********************************************
 MANUAL ADJUSTMENT PROGRAM
**********************************************
 [A]      DATA INITIALIZE
 [B]      ELECTRIC VOLUME
 [C]      ADJUSTMENT
 [D]      VCR ADJUSTMENT
 [E]      AUTO FOCUS
 [F]      EIS
 [G]      SPOT NOISE
 [H]      LCD
 [ESC]    END
   Please select [A] - [H] or [ESC]
```

Display 9-1

VCR ADJ. MENU

```
**********************************************
          VCR ADJUSTMENT
**********************************************
[1]  ADJUSTMENT OF ODC
[2]  ADJUSTMENT OF
                SWITCHING POINT
[ESC] RETURN TO MAIN MENU
     Please select [1], [2] or [ESC]
```

Display 9-2

```
« SET UP OF ODC
        ADJUSTMENT STARTED »
PRESET POSITION OF
     'CAMERA/OFF/VCR' SWITCH
          'VCR' POSITION
SET POWER SOURCE AT 5.8 (+/- 0.05)
```

Display 9-3

```
« SETUP OF ODC
      ADJUSTMENT COMPLETED »
« ODC ADJUSTMENT STARTED »
« ODC ADJUSTMENT COMPLETED »
        PRESS ANY KEY.
```

(2) Head Switching Point Adjustment

Note: Be sure to perform this adjustment after replacing the cylinder assembly and VCA circuit board.

Purpose:

To set the switching point of the video heads during playback.

Incompleted Phenomenon:

Vertical jitter occurs.
Switching noise appears across the bottom of the monitor screen.

Equipment/Jig:

Alignment Tape

Condition:

Playback the alignment tape.

Procedure:

1) Refer to display 9-1.
2) Press **2** key.
3) Refer to displays 9-4, 9-5 and 9-6.
4) Press any key to return to VCR ADJ. MENU display.
5) Turn the power off.

Display & Figs

Display 9-1

VCR ADJ. MENU

```
**********************************************
            VCR ADJUSTMENT
**********************************************
[1]    ADJUSTMENT OF ODC
[2]    ADJUSTMENT OF
                SWITCHING POINT
[ESC] RETURN TO MAIN MENU
     Please select [1], [2] or [ESC]
```

Display 9-4

```
« ADJUSTMENT OF
                SWITCHING POINT »
PRESET POSITIONS OF
      'CAMERA/OFF/VCR' SWITCH
          'VCR' POSITION
          PRESS ANY KEY
```

Display 9-5

```
SET UP OF SW POINT
          ADJUSTMENT STARTED.
SET UP OF SW POINT
        ADJUSTMENT COMPLETED.
SW POINT ADJUSTMENT STARTED.
```

Display 9-6

```
SW POINT ADJUSTMENT
                DATA CHEACKING.
     FINISHED WRITING DATA.
     ADJUSTMENT FINISHED.
          PRESS ANY KEY
```

4. ERROR MESSAGE

4.1 Camera Electric Volume and Digital Adjustments

ERROR MESSAGE	COUNTERMEASURE
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	· Check whether or not power is supplied. · Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit. · Check the iris block and replace it if necessary.
ERROR OCCURRED ON dax ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER. ERROR ON dax ADJUSTMENT PRESS ANY KEY.	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in theabove circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit and its peripheral circuits. · Defective soldering, damage to pattern, etc. in the above circuits.
FILE NOT FOUND !!!! PRESS ANY KEY	· The adjustment program (file) cannot be found. · Check the adjustment floppy disk and replace it if necessary.
FILE OPEN ERROR !!!! PRESS ANY KEY	· The adjustment program (file) does not start. · Check the adjustment floppy disk and replace it if necessary.

ERROR MESSAGE	COUNTERMEASURE
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY	· Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	· Supply power again and re-adjust. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	· Supply power again and re-adjust.
TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
TOO DARK PRESS ANY KEY	· The subject is too dark. · Check the light box. · Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	· Supply power again and re-adjust. · The subject is too dark. · Check the light box. · Move the camera closer to the light box. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
STAURATION ERROR. TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
CAN'T ADJUST WHITE BALANCE PLEASE RETRY PRESS ANY KEY	· The subject is too bright or too dark. · Check the light box. · Move the camera closer to or away from the light box. · Supply power again and re-adjust.

4.2 Autofocus Adjustment

ERROR MESSAGE	COUNTERMEASURE
TIME OUT ERROR ON FOCUS	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON ZOOM	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON AF STEP	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
AF LIMIT OVER	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
AF ERROR	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TOO DARK	·Insufficient lighting. Check the subject.

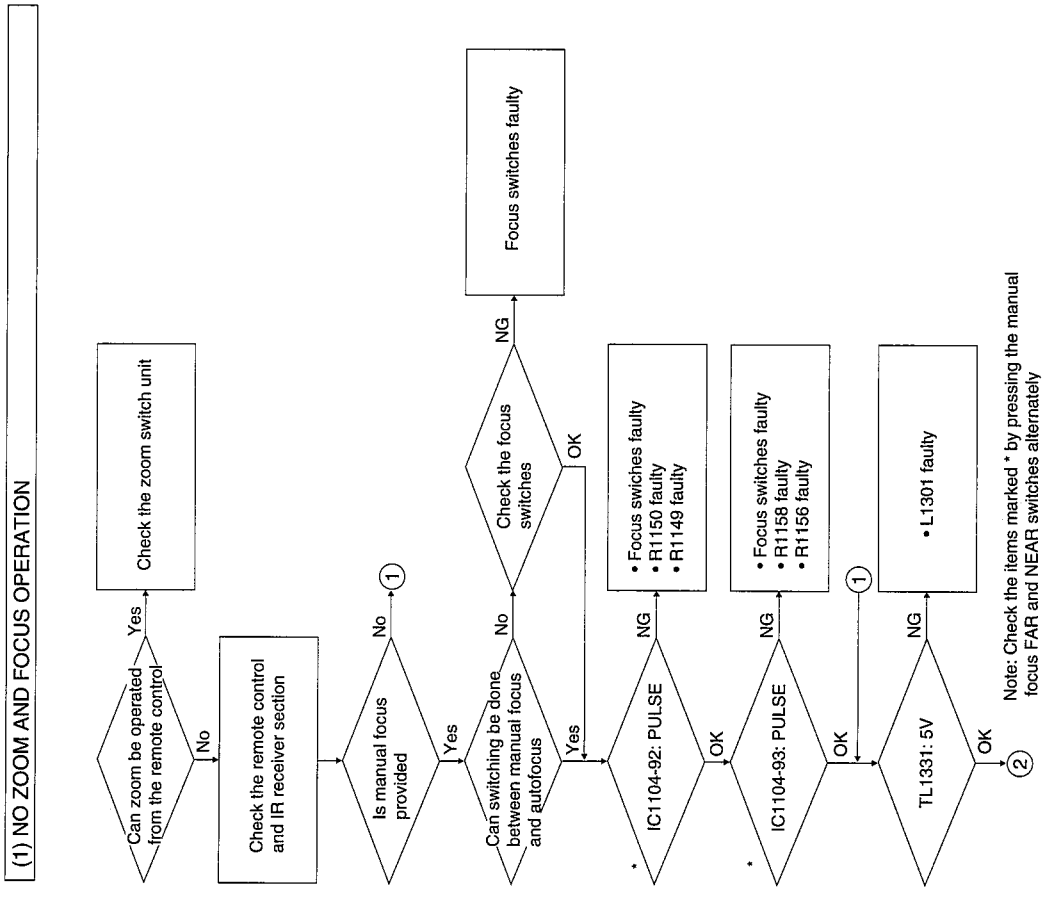
4.3 Spot Noise Adjustment

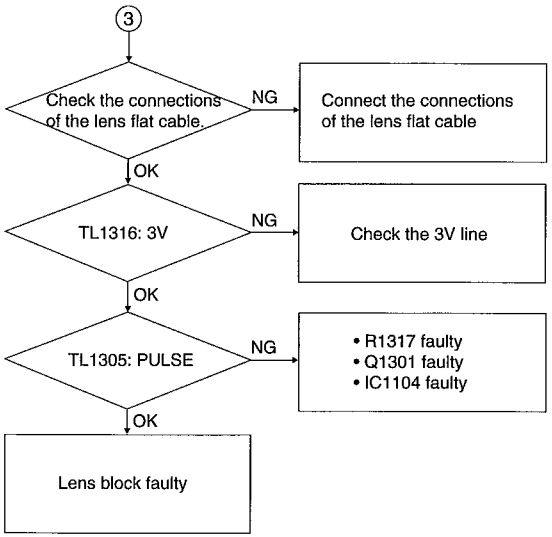
ERROR MESSAGE	COUNTERMEASURE
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Spot noise compensation is inhibited by the data in the EEPROM. · Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THE SPOT NOISE IS TOO MANY. CAN'T COMPENSATE ANY MORE. PRESS ANY KEY.	· The amount of spot noise that can be compensated reaches the limit. · Turn the power on again. · Check the CCD image sensor,and if necessary,replace it.

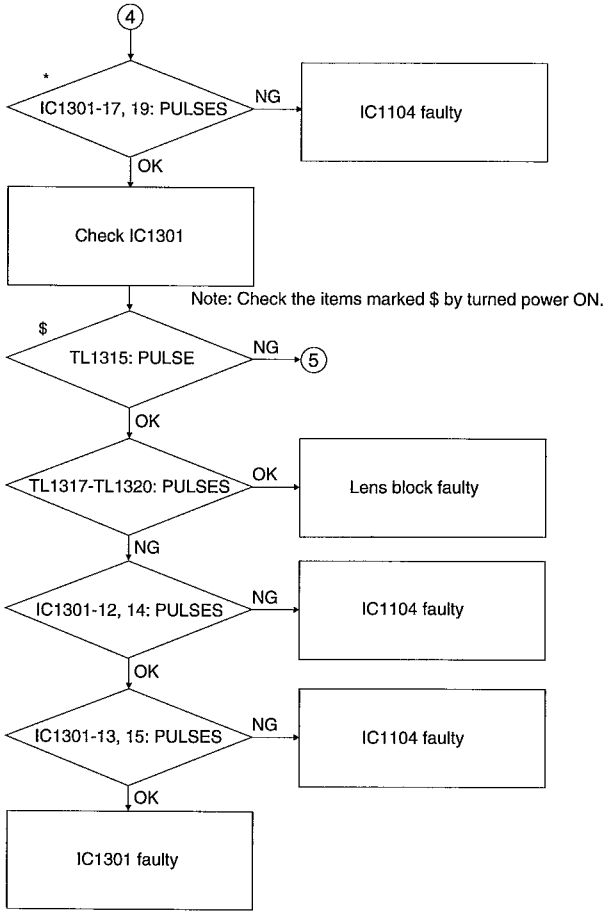
4.4 VCR Adjustment

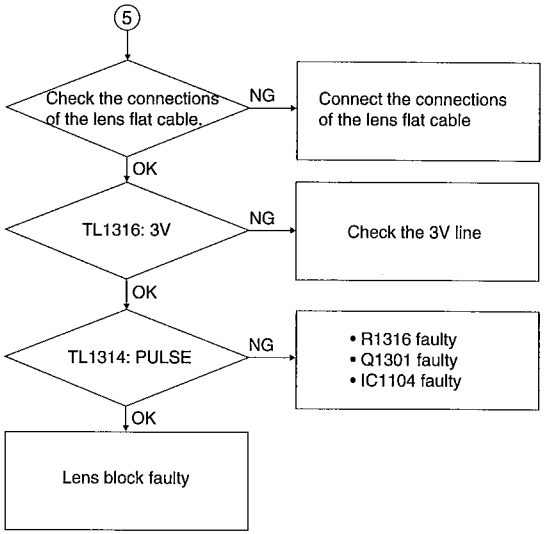
ERROR MESSAGE	COUNTERMEASURE
ERROR: SWP_TEST>DAT FILE NOT FOUND!	· The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR: INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
THIS MODEL NEED NOT BE ADJUSTED PRESS ANY KEY	· A wrong model has been selected. · A product that needs analog adjustment is connected.
ADJUSTMENT INCOMPLETED PRESS ANY KEY	· The value set by adjustment defective. · Re-adjust. · Check cylinder. · Check the alignment tape. · Check whether or not the usual operation is done correctly.
RETRY ADJUSTING. PRESS ANY KEY	· Supply power again and re-adjust.
CAMERA IS NOT READY	· Check whether or not power is supplied.
ERROR OCCURRED CAN'T PLAY BACK PRESS ANY KEY	· No playback video. · Check the playback signal.
ERROR OCCURRED NO V.SYNC FOUND PRESS ANY KEY	· Vertical sync loss. · Check the vertical sync signal.
INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED CAN'T RECORD PRESS ANY KEY	· No video recording. · Check the recording signal.

5. TROUBLESHOOTING OF AUTOFOCUS

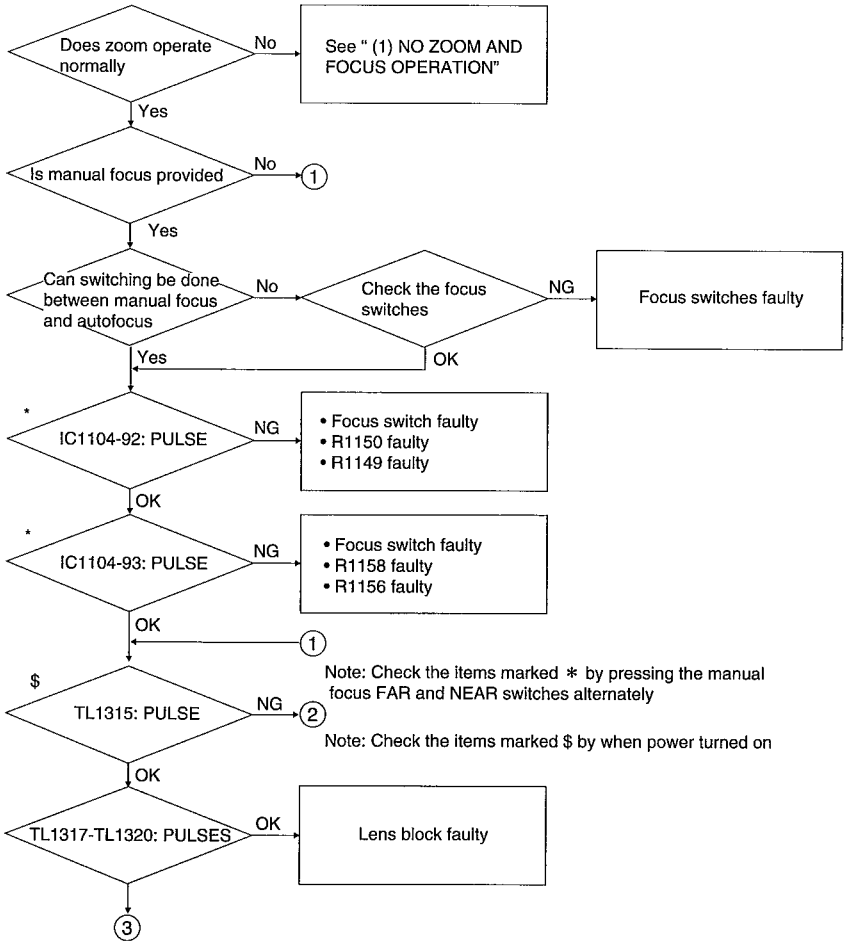


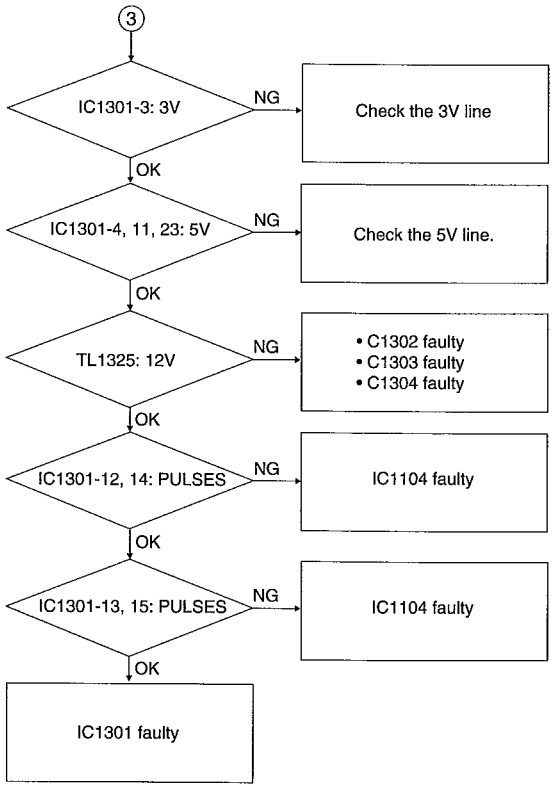

3
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable
OK
TL1316: 3V
NG
Check the 3V line
OK
TL1305: PULSE
NG
• R1317 faulty
• Q1301 faulty
• IC1104 faulty
OK
Lens block faulty

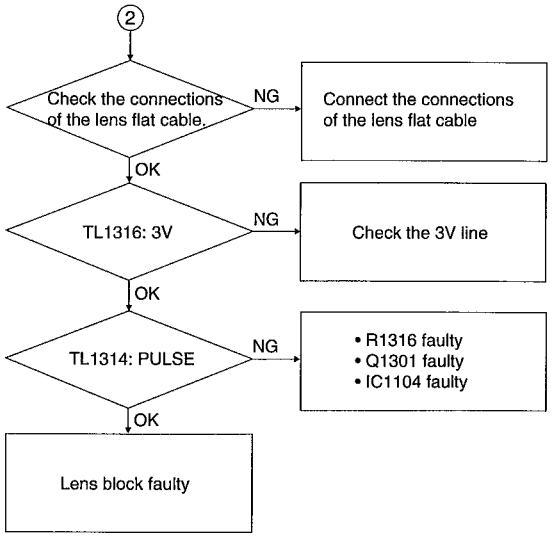

4
*
IC1301-17, 19: PULSES
NG
IC1104 faulty
OK
Check IC1301
Note: Check the items marked $ by turned power ON.
$
TL1315: PULSE
NG
5
OK
TL1317-TL1320: PULSES
OK
Lens block faulty
NG
IC1301-12, 14: PULSES
NG
IC1104 faulty
OK
IC1301-13, 15: PULSES
NG
IC1104 faulty
OK
IC1301 faulty


5
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable
OK
TL1316: 3V
NG
Check the 3V line
OK
TL1314: PULSE
NG
• R1316 faulty
• Q1301 faulty
• IC1104 faulty
OK
Lens block faulty

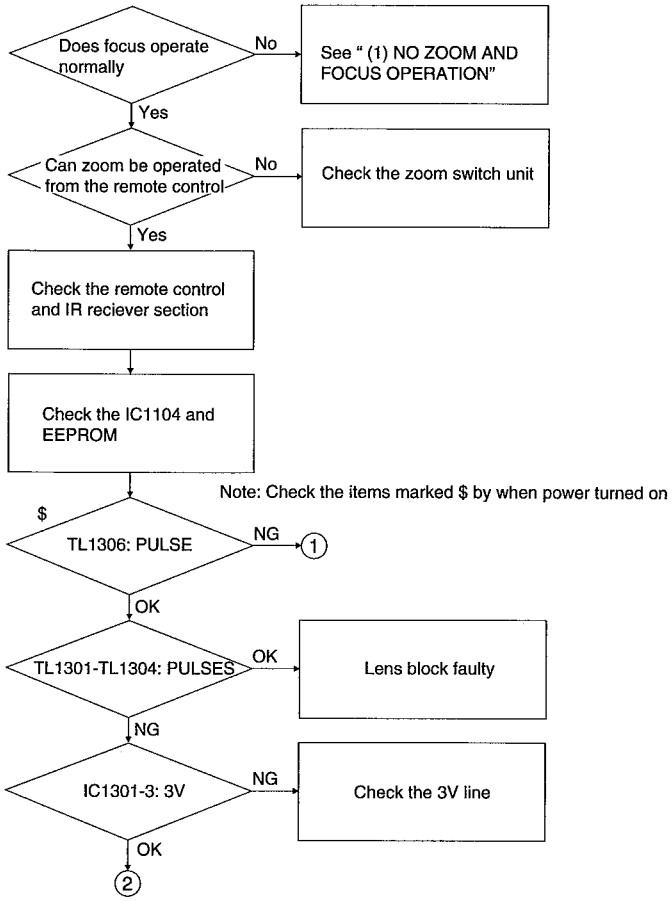
(2) NO FOCUS LENS OPERATION

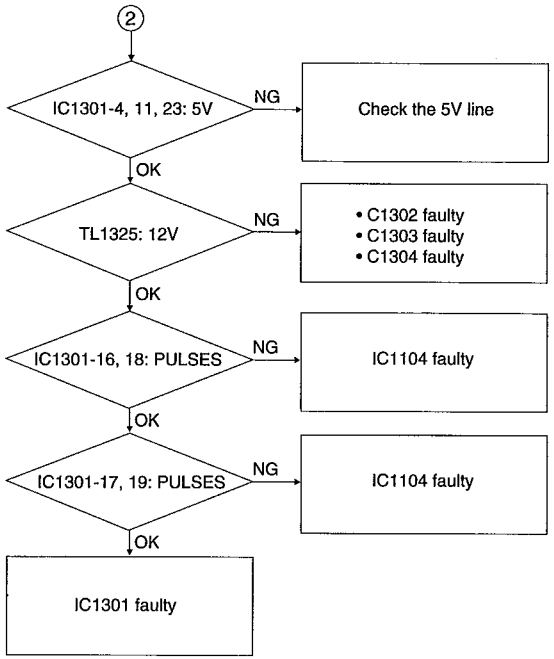


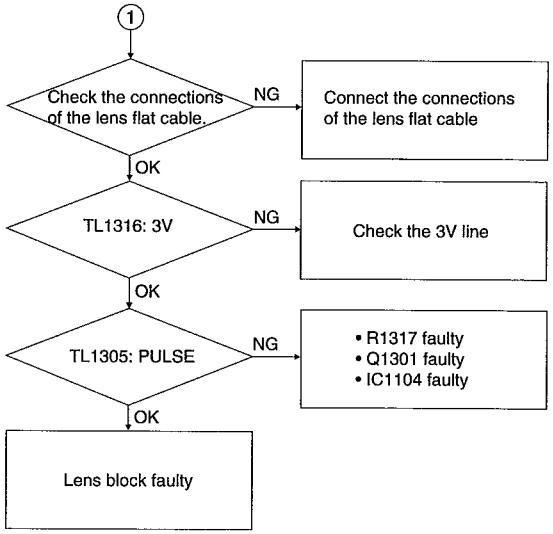




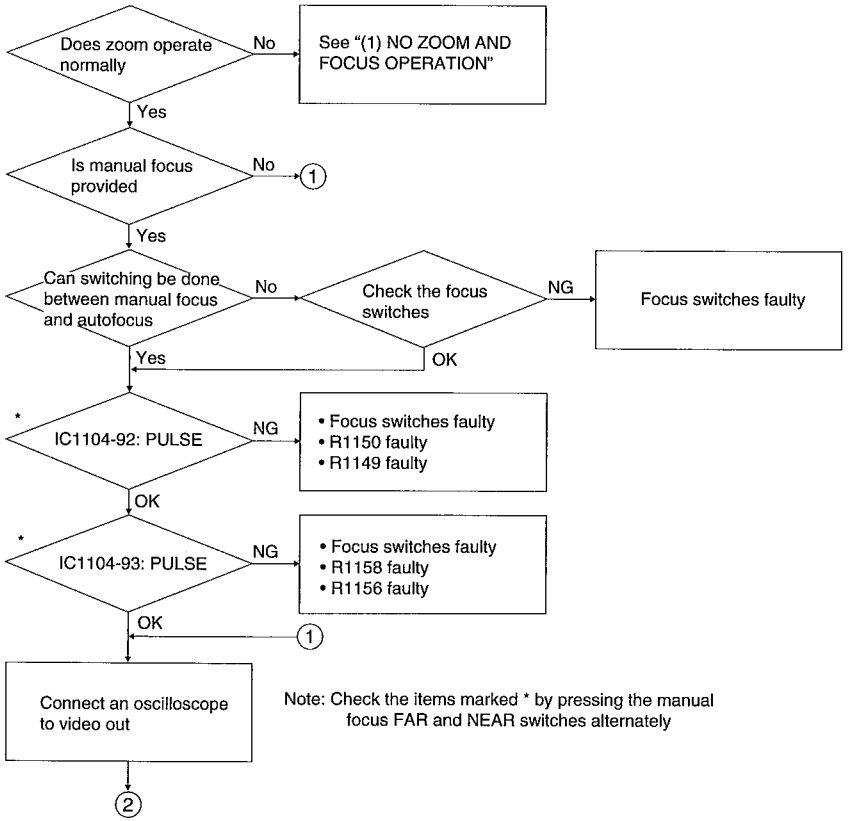
(3) NO ZOOM OPERATION



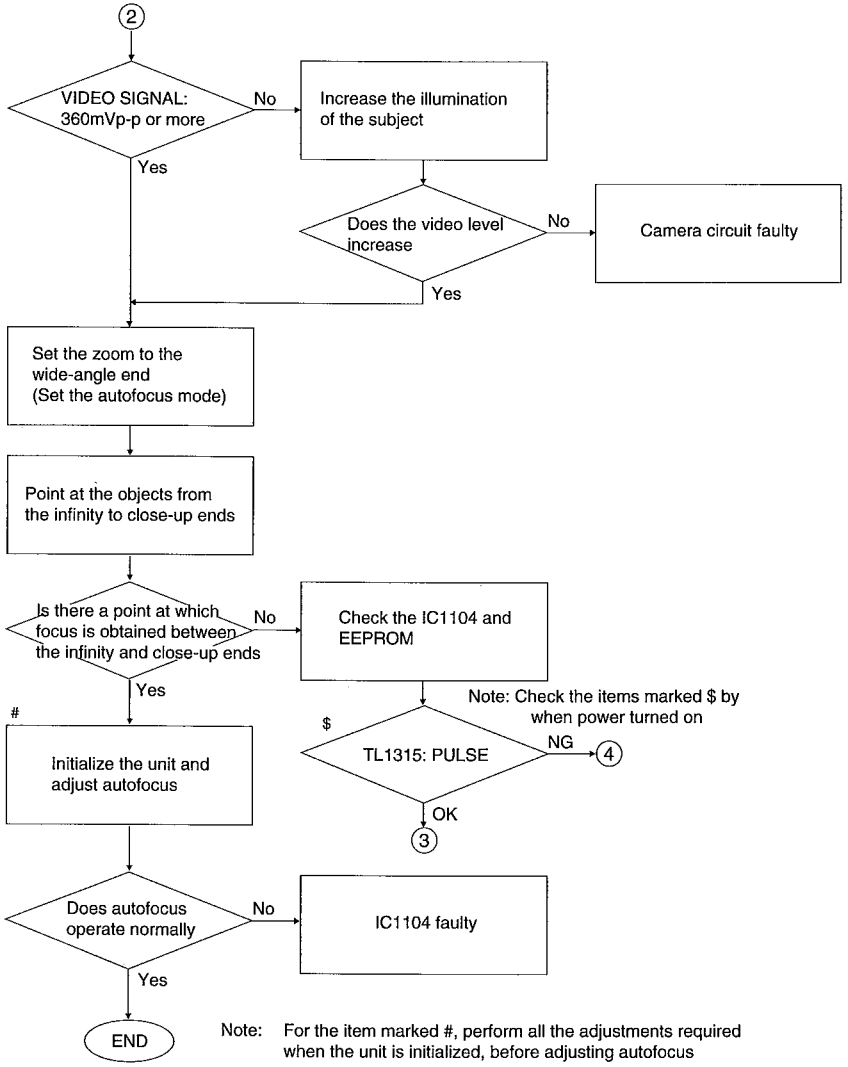




(4) NO AUTOFOCUS OPERATION

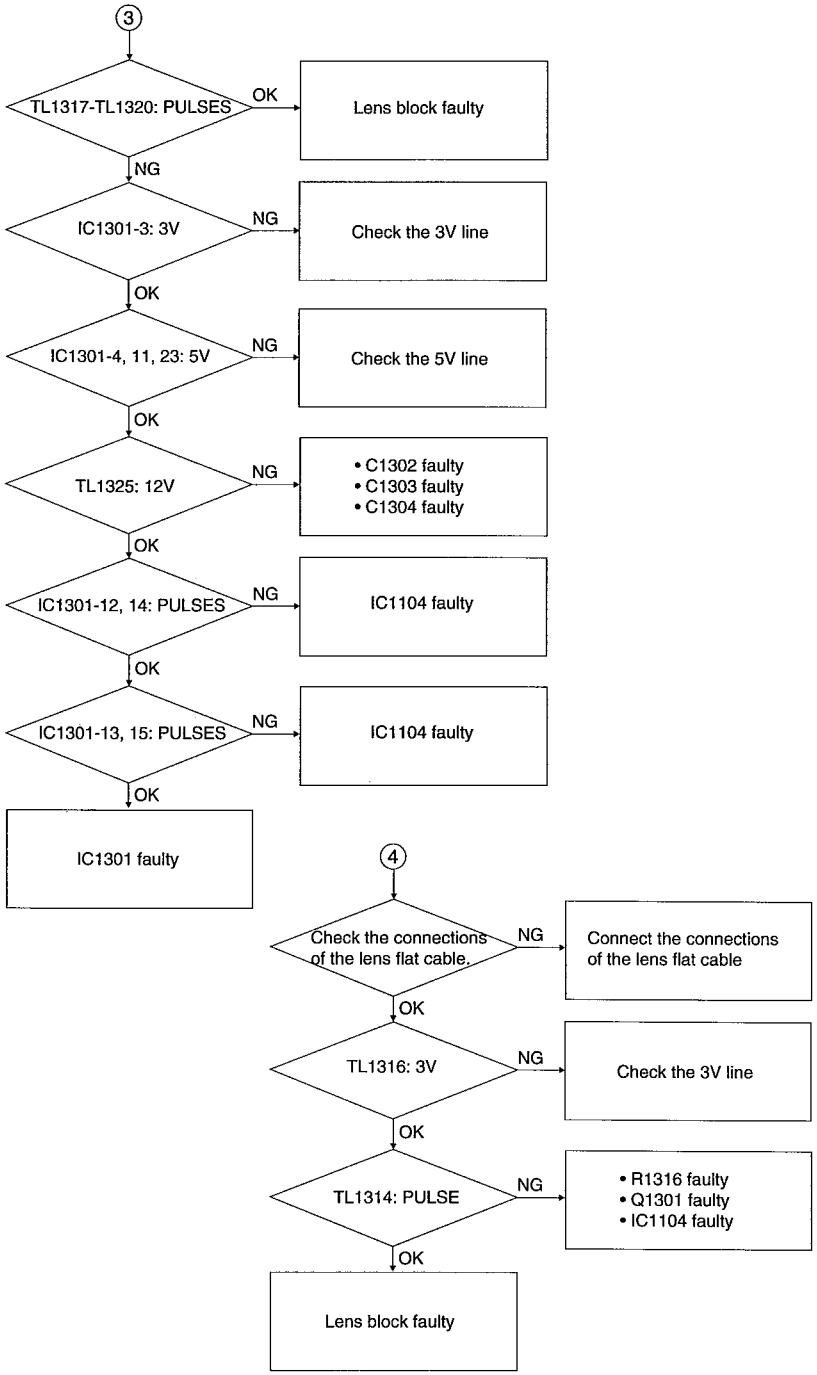


Note: Check the items marked * by pressing the manual focus FAR and NEAR switches alternately

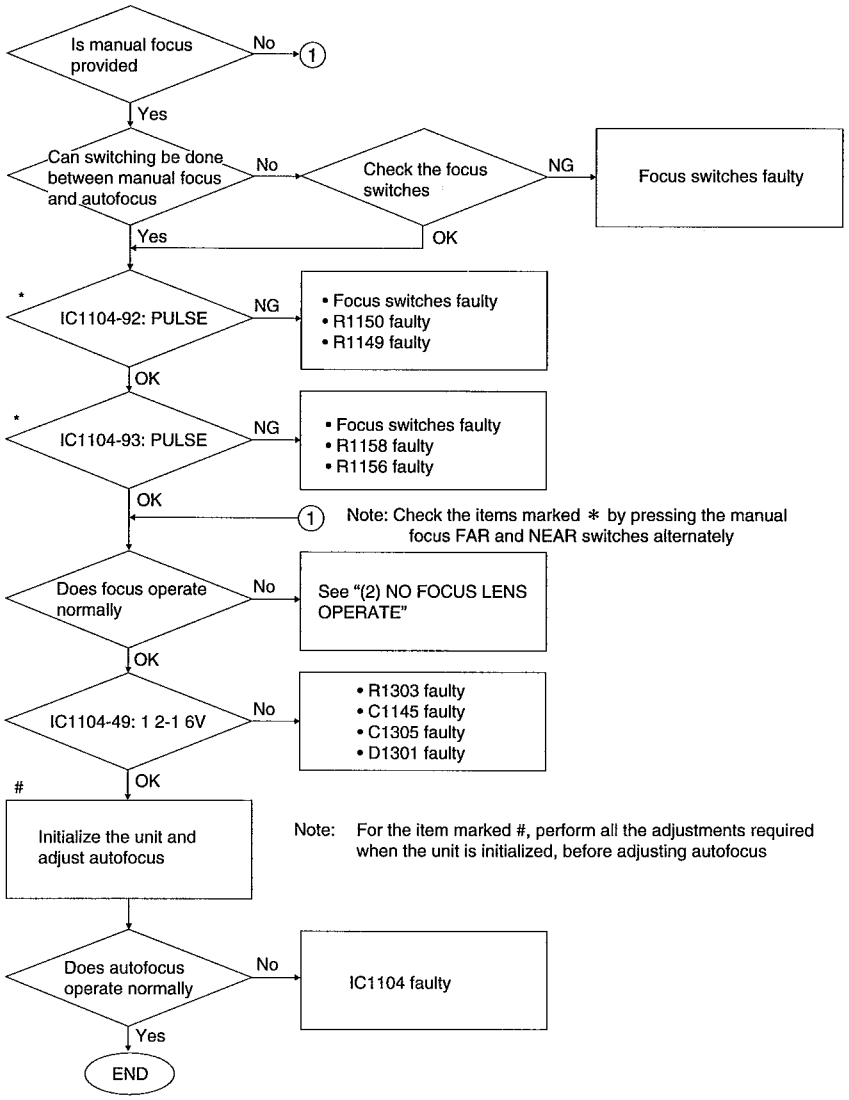


Note: Check the items marked $ by when power turned on

Note: For the item marked #, perform all the adjustments required when the unit is initialized, before adjusting autofocus

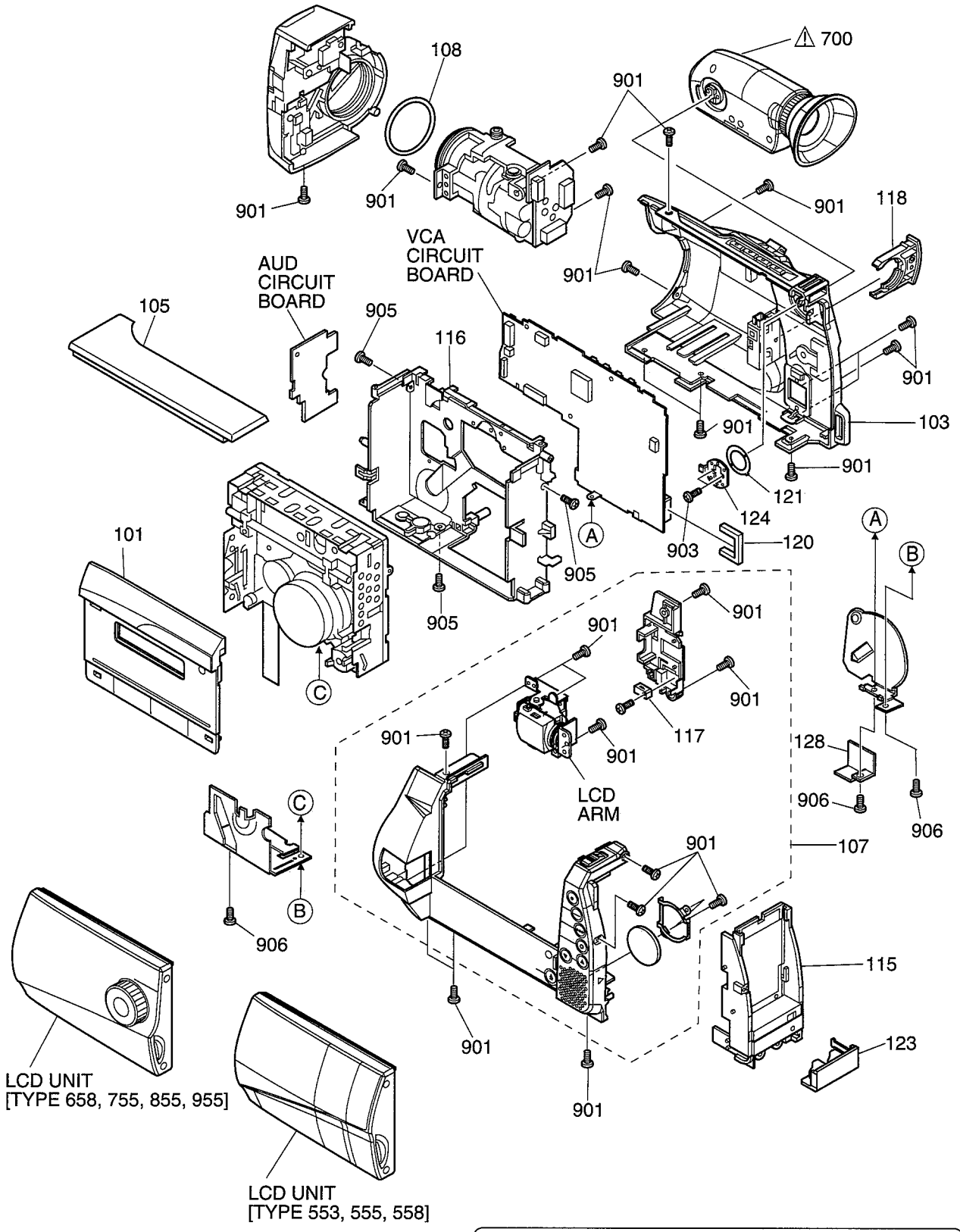


(5) SUBJECT IS GREATLY OUT-OF-FOCUS WHEN ZOOMED



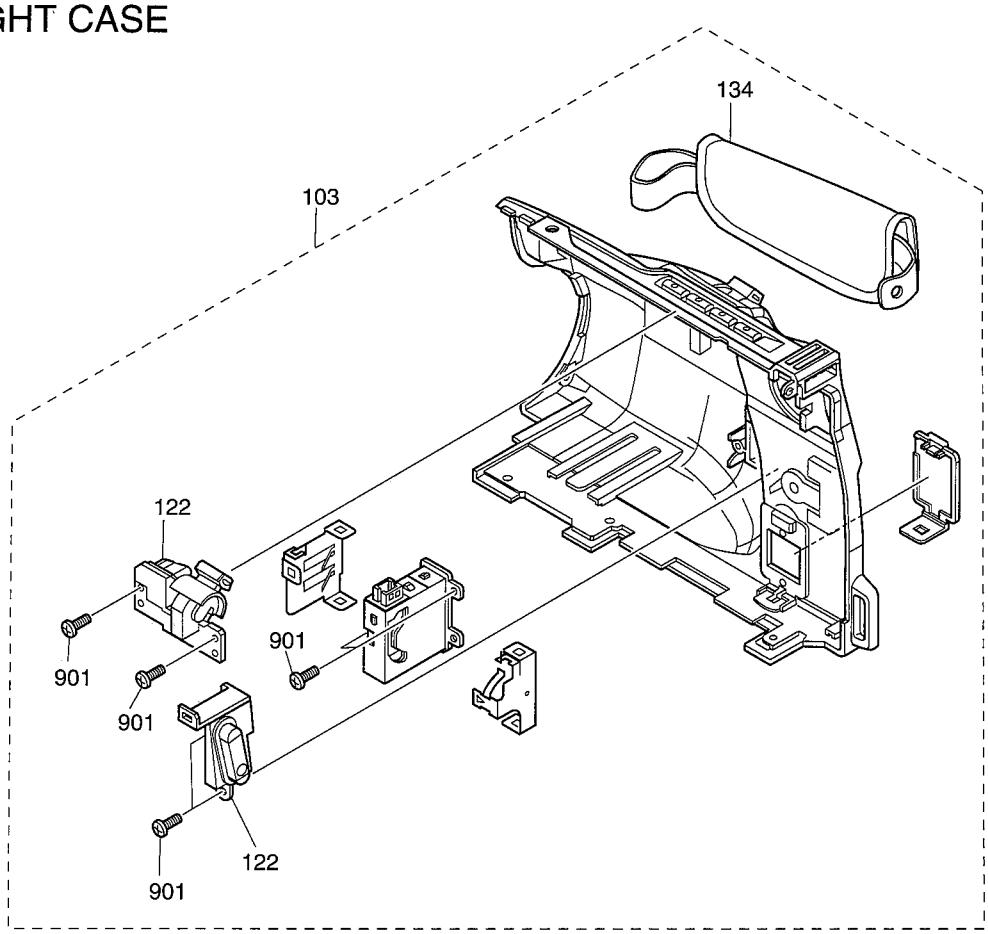
CHAPTER 4 EXPLODED VIEW

1. CABINET

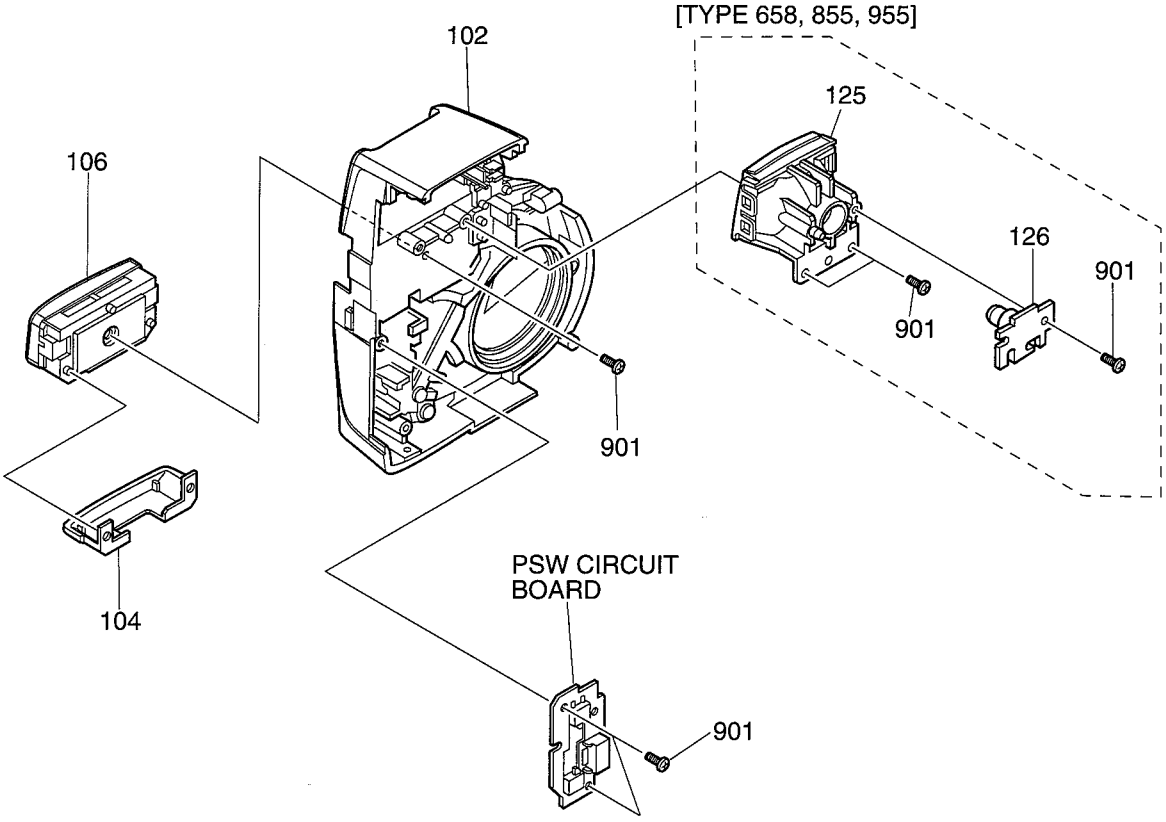


NOTE: The synthetic resin members that can be dismantled are shown by abbreviations using letters.

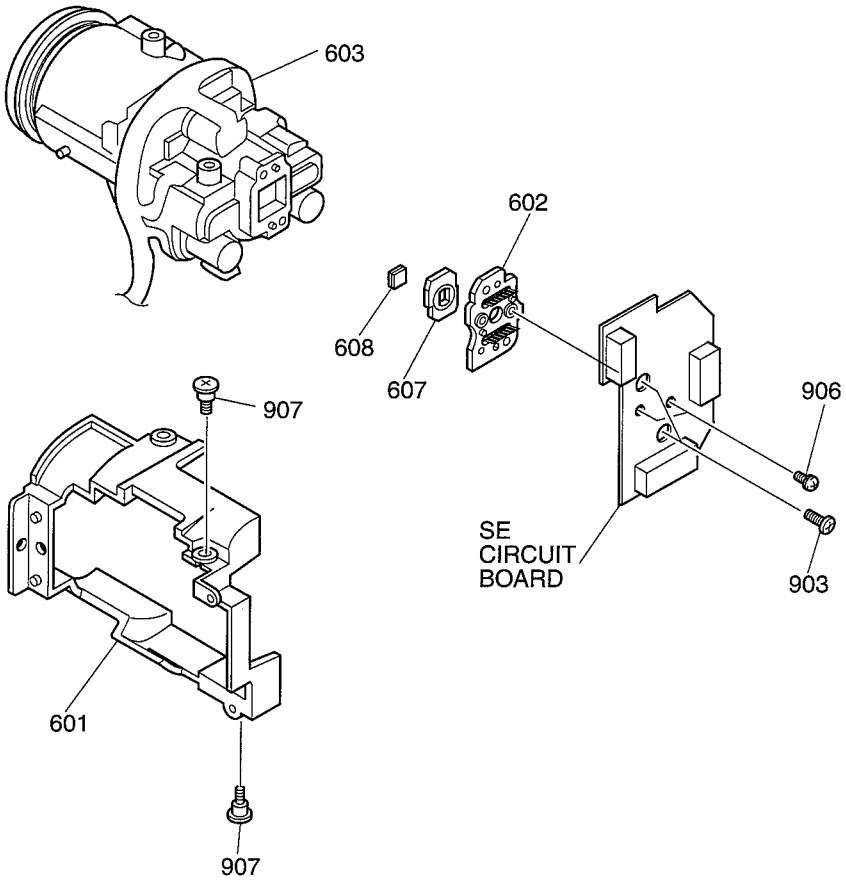
2. RIGHT CASE



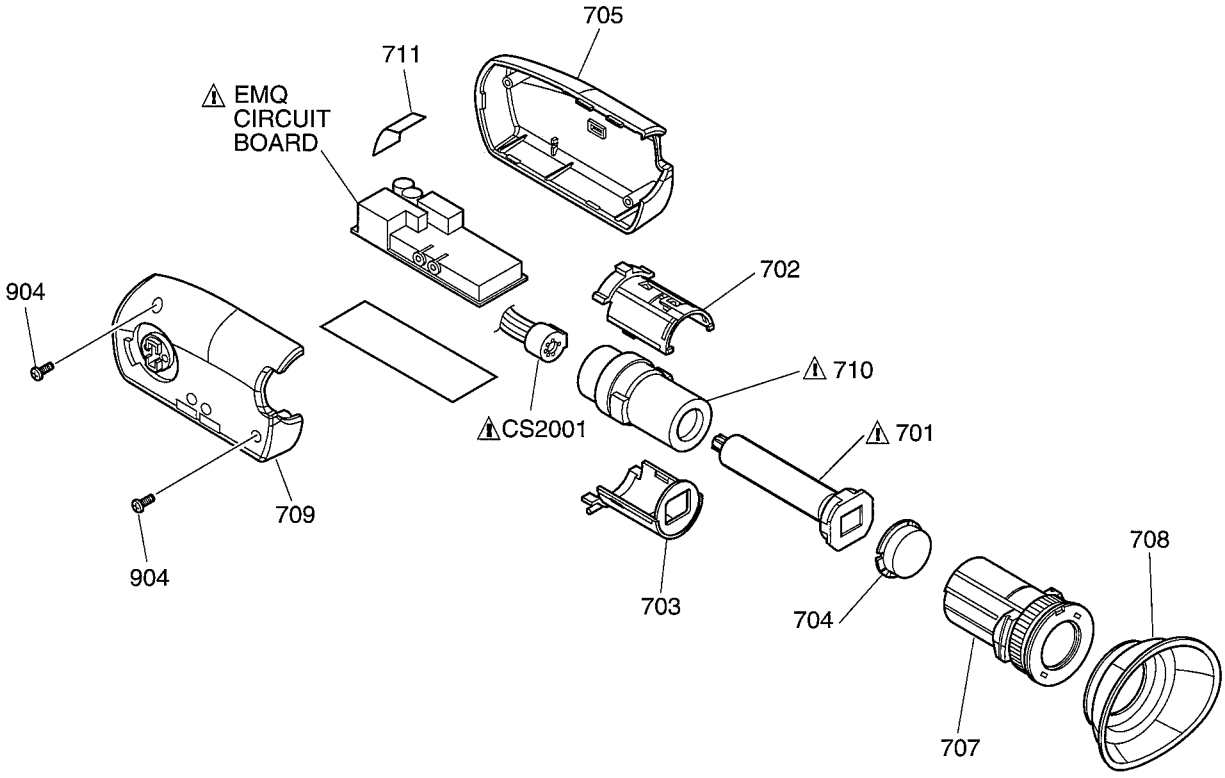
3. FRONT



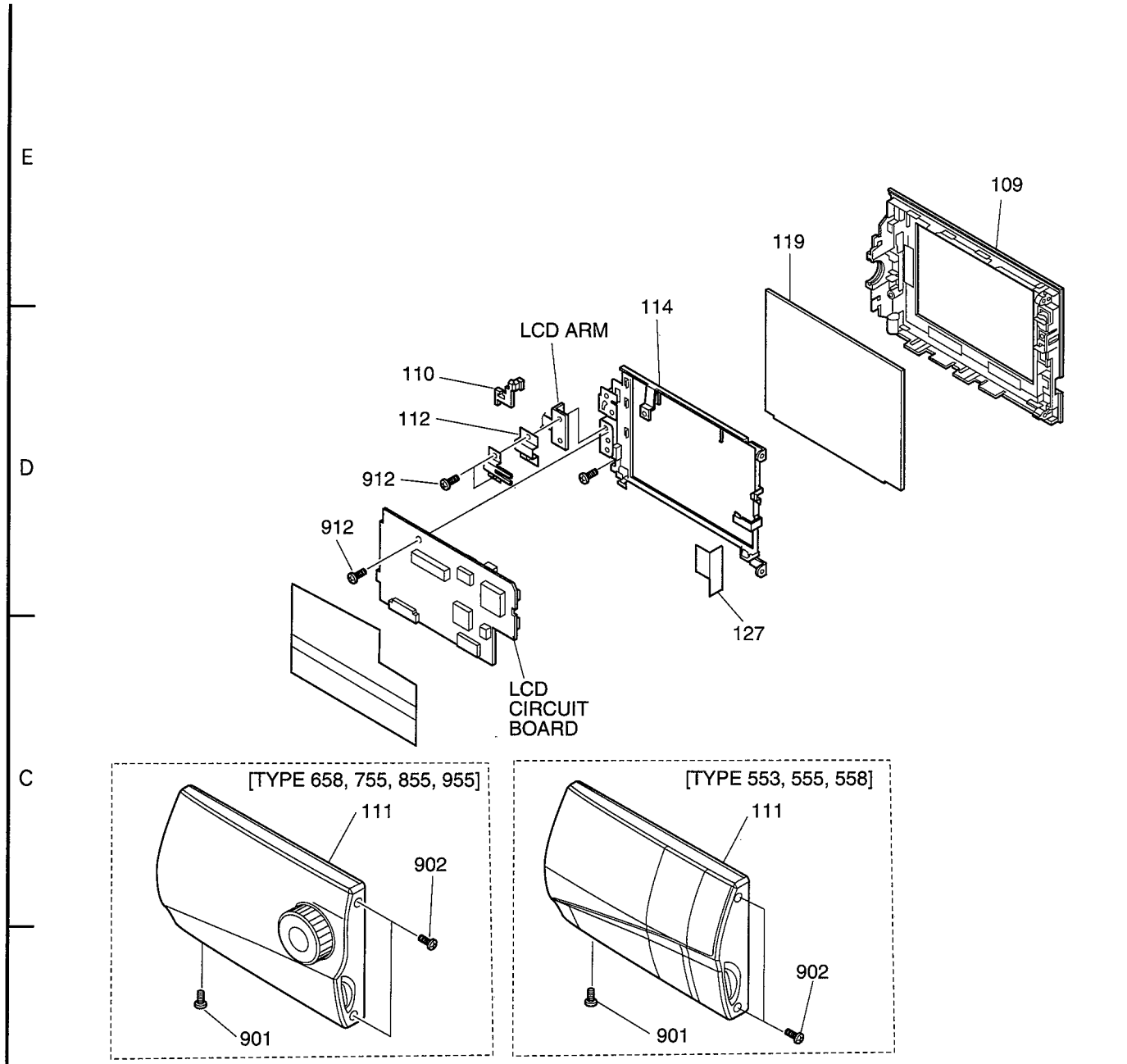
4. CAMERA



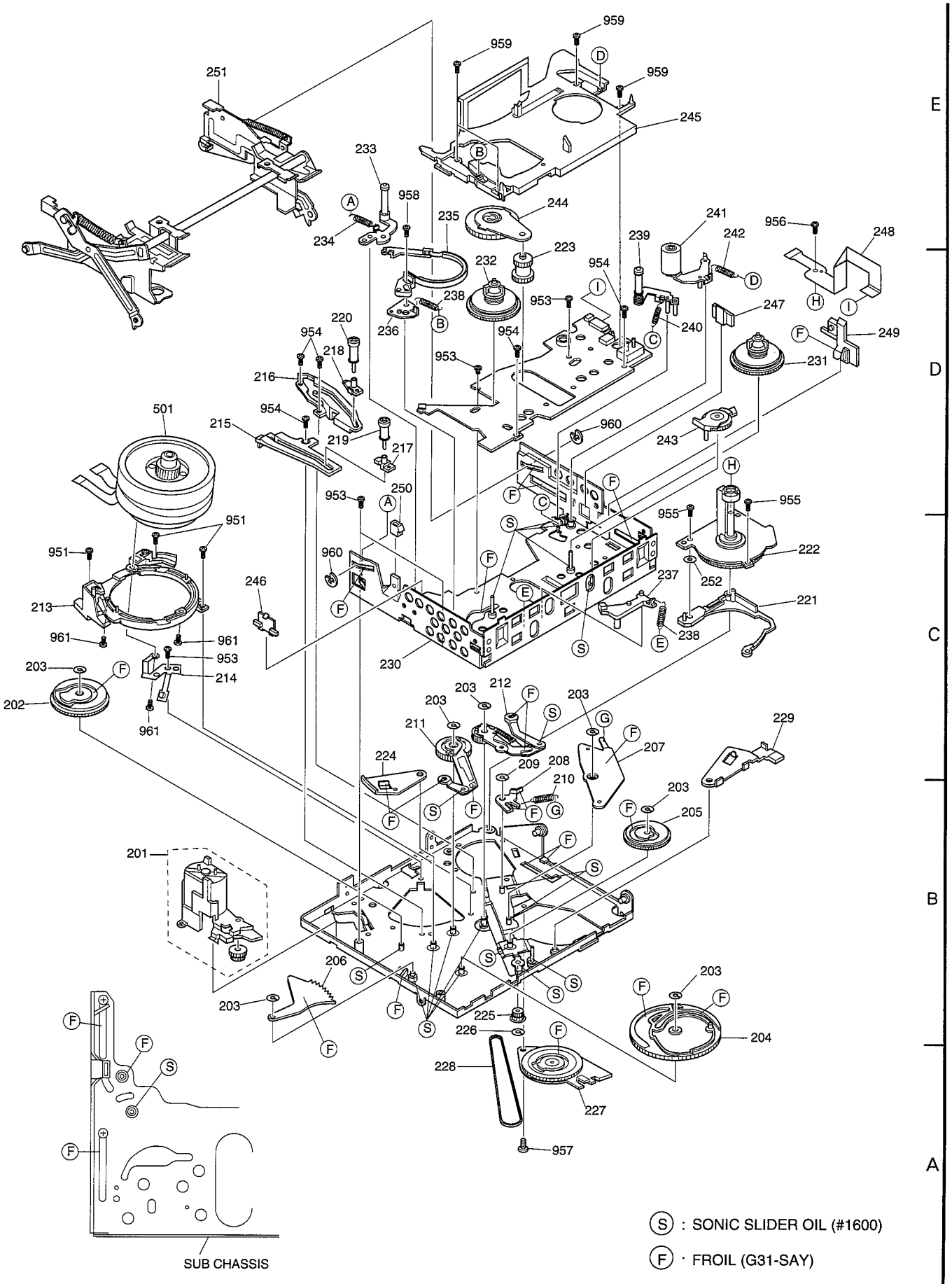
5. ELECTRONIC VIEWFINDER (EVF)



6. LCD


109
119
114
LCD ARM
110
112
912
912
127
LCD
CIRCUIT
BOARD
[TYPE 658, 755, 855, 955]
111
902
901
[TYPE 553, 555, 558]
111
902
901

7. MECHANISM


959
959
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251
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233
958
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501
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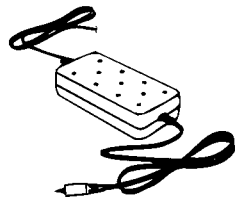
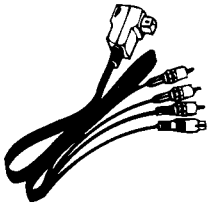
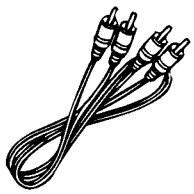
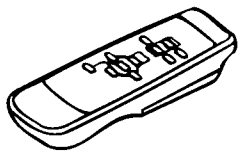
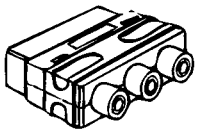
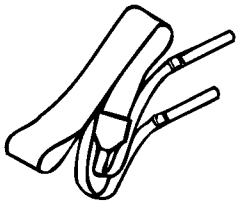
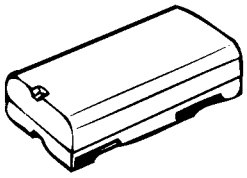
961
953
214
203
202
961
203
212
203
203
211
229
224
207
209
208
210
203
205
201
206
203
225
226
204
228
227
957
SUB CHASSIS
S : SONIC SLIDER OIL (#1600)
F : FROIL (G31-SAY)

8. ACCESSOREIS

⚠ **802**  VM-ACE5E	**804** [TYPE 755, 855, 955] 	**804** [TYPE 553, 555, 558, 658] 	**805**  VM-RME411A(R)
806 [TYPE553, 555, 755, 855, 955] 	**807** 	⚠ **Battery**  VM-BPL13	

E

D

C

B

A

1 2 3 4

CHAPTER 5 REPLACEMENT PARTS LIST

1. MECHANICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION
		MECHANISM SECTION
101	QD17823	LID, CASSETTE [TYPE 755, 855, 955]
101	QD17824	LID, CASSETTE [TYPE 558, 658]
101	QD17827	LID, CASSETTE [TYPE 553, 555]
102	QD17681	CASE, FRONT [TYPE 755, 855, 955]
102	QD17682	CASE, FRONT [TYPE 558]
102	QD17683	CASE, FRONT [TYPE 658]
102	QD17684	CASE, FRONT [TYPE 553, 555]
103	QD17693	CASE, SIDE(R) [TYPE 755, 855, 955]
103	QD17694	CASE, SIDE(R) [TYPE 553, 558, 555, 658]
104	QD16604	COVER, MICROPHONE [TYPE 558]
104	QD16605	COVER, MICROPHONE [TYPE 553, 555]
104	QD17832	COVER, MICROPHONE [TYPE 755, 855, 955]
104	QD17831	COVER, MICROPHONE [TYPE 658]
105	QD16541	COVER, TOP [TYPE 553, 555]
105	QD16543	COVER, TOP [TYPE 558, 658, 755, 855, 955]
106	GH10323	MICROPHONE (STEREO) [TYPE 755, 855, 955]
106	GH10324	MICROPHONE, MONORAL [TYPE 553, 555, 558, 658]
107	QD17701	CASE, SIDE(L) [TYPE 755, 658, 855, 955]
107	QD17702	CASE, SIDE(L) [TYPE 553]
107	QD17704	CASE, SIDE(L) [TYPE 558]
107	QD17706	CASE, SIDE(L) [TYPE 555]
108	NX11243	RING, O
109	QD16381	CASE, LCD(B) [TYPE 955]
109	QD17711	CASE, LCD(B) [TYPE 553, 555, 558, 755]
109	QD16411	CASE, LCD(B) [TYPE 658, 855]
110	NX16762	LINK, SWITCH
111	QD17775	CASE, LCD(U) [TYPE 555]
111	QD17776	CASE, LCD(U) [TYPE 558]
111	QD18061	CASE, LCD(U) [TYPE 955]
111	QD17777	CASE, LCD(U) [TYPE 553]
111	QD18062	CASE, LCD(U) [TYPE 855]
111	QD18064	CASE, LCD(U) [TYPE 658]
111	QD18063	CASE, LCD(U) [TYPE 755]
112	MN12761	SPACER
114	DT10222	LIGHT, BACK [TYPE 658, 855]
114	DT10212	LIGHT, BACK [TYPE 955]
114	DT10261	LIGHT, BACK [TYPE 553, 555, 558, 755]
115	FH10622	REAR UNIT
116	NT11402	FRAME, MECHA
117	FH10364	SWITCH
118	QD16491	COVER, BATTERY
119	DB10641	DISPLAY, LIQUID CRYSTAL [TYPE 955]
119	DB10651	DISPLAY, LIQUID CRYSTAL [TYPE 553, 555, 558, 755]
119	DB10661	DISPLAY, LIQUID CRYSTAL [TYPE 658, 855]
120	NJ10411	HOLDER
121	4899872	SPRING
122	FH10442	SWITCH, T/W
123	QX13201	COVER, JACK
124	NA17141	STOPPER
125	KS10771	LIGHT, DC [TYPE 658, 855, 955]
126	DP10291	LAMP [TYPE 658, 855, 955]
127	MN14221	SHEET
128	MD12831	SHIELD, HEAD
134	PV10241	STRAP, HAND
201	KX19871	HOLDER, LOADING MOTOR
202	KX20252	GEAR, CAM(A)
203	7787731	WASHER
204	KX21271	GEAR, CAM
205	KX20271	GEAR, CAM(C)
206	KX19801	ARM, DRIVE
207	KX21021	LEVER, DRIVE
208	KX19821	PLATE, PRESSURE
209	7787735	WASHER
210	KL12652	SPRING
211	KX19706	LINK(L)
212	KX19658	LINK(R)
213	KX21591	BASE, CYLINDER ASSY
214	FU10311	BRUSH
215	KX20551	GUIDE RAIL(I)
216	KX20561	GUIDE RAIL(O)
217	KX20572	BASE, GUIDE ROLLER(I)
218	KX20582	BASE, GUIDE ROLLER(O)
219	KF13071	ROLLER, GUIDE(I)
220	KF13111	ROLLER, GUIDE(O)
221	KX20291	BASE, CM
222	GP10665	MOTOR, CAPSTAN
223	KF12911	GEAR, CENTER
224	KX19831	PLATE, OPERATION
225	KF12901	GEAR, PULLY
226	7787733	WASHER
227	KX19641	SWITCH, MODE
228	KK10331	BELT, TIMING
229	KX20983	ARM, ED
230	UE13523	CHASSIS, SUB
231	KH10353	REEL DISK, TAKE-UP
232	KH10363	REEL DISK, SUPPLY
233	KX20302	ARM, TENSION
234	KL12661	SPRING, TENSION
235	KX20201	BAND, TENSION
236	KX19841	BASE, B
237	KX19851	BRAKE
238	KL12671	SPRING
239	KX20494	ARM, OHD
240	KL12681	SPRING
241	KX20353	ARM, PRESSURE
242	KL12691	SPRING
243	KG10281	GEAR, BRAKE
244	KG10302	IDLER ASSY
245	KX20483	COVER, IDLER
246	KX20461	GUIDE, LIGHT(L)
247	KX20472	GUIDE, LIGHT(R)
248	EK11132	FLEXIBLE, MECHA
249	KX20241	HOLDER, EJECT
250	KX19791	LID OPENER
251	KX19608	CASSETTE HOLDER ASSY
252	KX21112	WASHER
501	HX10256	CYLINDER ASSY(CY-53LR) [TYPE 553, 555, 558, 658]
501	HX10258	CYLINDER ASSY(CY-53L5-F) [TYPE 755, 855, 955]
601	NT11412	FRAME, LENS
602	UE13384	CCD IMAGE SENSOR ASSY [TYPE 553, 555, 558]
602	UE13387	CCD IMAGE SENSOR ASSY [TYPE 658, 755, 855, 955]
603	KQ10751	LENS ASSY
607	NX11252	RUBBER
608	DT10241	CRYSTAL [TYPE 553, 555, 558]
608	DT10251	CRYSTAL [TYPE 658, 755, 855, 955]
⚠700	UX10591	EVF ASSY
⚠701	DE10112	CRT
702	QD16301	CASE, CRT(U)
703	QD16311	CASE, CRT(B)
704	4592241	COVER
705	QD16321	CASE. EVF(R)
707	QD15415	CASE, SLIDE
708	QX11991	CAP, EYE
709	QD16331	CASE, EVF(L)

2. ELECTRICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION
⚠710	5242113	DEFLECTION YOKE
711	4344292	SPACER
901	7775946	SCREW (2X6)
902	7775966	SCREW(2X6)
903	7775945	SCREW(2X5)
904	8619003	SCREW 1.7X5
905	7773891	SCREW
906	8650103	SCREW(2X3)
907	MJ10221	SCREW
912	8650104	SCREW
951	8700268	SCREW(1.7X3)
953	7775911	SCREW(1.4X1.6)
954	7775913	SCREW (1.4X2.0)
955	8712970	SCREW(1.4X4)
956	8712974	SCREW(1.4X6)
957	8712968	SCREW(1.4X3P)
958	MK11551	SCREW(1.7X3.0)
959	8714026	SCREW (1.4X3.5)
960	7778394	E RING
961	8711105	SCREW(2X5)
		ACCESSARIES
⚠802	TS15053	ADAPTOR,AC(VM-ACE5E)
⚠802	TS15054	ADAPTOR,AC(VM-ACE5E(UK))
⚠802	TS15055	ADAPTOR,AC(VM-ACE5E(AU))
804	5856293	AV OUTPUT CORD [TYPE 755,855,955]
804	EW10943	CORD [TYPE 553,555,558,658]
805	HL11045	REMOTE HAND SET(VM-RME411AR)
806	TS12981	AV PLUG ADAPTER[TYPE 553,555,755,855,955]
807	TS14621	STRAP,SHOULDER

SYMBOL NO	P-NO	DESCRIPTION
		CAMERA & VCR SECTION
C0001	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0003	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0004	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0005	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0101	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0102	0806186	ELECTROLYTIC 220UF 6.3V
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0104	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0105	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0106	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0108	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0111	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0113	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0116	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0117	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V
C0121	0893121	CERAMIC CHIP 39PF+-5% 50V
C0122	0893118	CERAMIC CHIP 27PF+-5% 50V
C0124	0893114	CERAMIC CHIP 12PF+-5% 50V
C0125	0893114	CERAMIC CHIP 12PF+-5% 50V
C0126	0893124	CHIP CERAMIC 68PF+-5% 50V
C0128	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0130	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0132	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0133	0893119	CERAMIC CHIP 33PF+-5% 50V
C0134	0893104	CERAMIC CHIP 2.0PF 50V [955/855/755]
C0134	0893119	CERAMIC CHIP 33PF+-5% 50V [658/558/555/553]
C0136	0893117	CERAMIC CHIP 22PF+-5% 50V
C0137	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0141	0893133	CERAMIC CHIP 330PF+-5% 50V
C0142	0893123	CERAMIC CHIP 56PF+-5% 50V
C0143	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0144	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0145	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0146	0893109	CERAMIC CHIP 7.0PF 50V [955/855/755]
C0146	0893117	CERAMIC CHIP 22PF+-5% 50V [658/558/555/553]
C0147	0893115	CERAMIC CHIP 15PF+-5% 50V
C0148	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0151	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0159	0893109	CERAMIC CHIP 7.0PF 50V
C0164	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0170	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0172	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0176	0893111	CERAMIC CHIP 8PF+-0.5% 50V
C0177	0893126	CERAMIC CHIP 100PF+-5% 50V
C0178	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0179	0893123	CERAMIC CHIP 56PF+-5% 50V
C0180	0893214	CERAMIC CHIP 2700PF+-10% 50V
C0201	0806153	ELECTROLYTIC 10UF 16V

SYMBOL NO	P-NO	DESCRIPTION
C0202	0806153	ELECTROLYTIC 10UF 16V
C0203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0206	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0207	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0208	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0209	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0210	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0211	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0212	0806153	ELECTROLYTIC 10UF 16V
C0213	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0214	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0217	0202321	CHIP CERAMIC 27PF+-2% 50V
C0218	0893102	CERAMIC CHIP 1.0PF+-0.25% 50V
C0219	0202319	CERAMIC CHIP 22PF+-2% 50V
C0220	0806153	ELECTROLYTIC 10UF 16V
C0222	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0223	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0224	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0225	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0226	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0227	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0228	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0229	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0230	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0232	0893116	CERAMIC CHIP 18PF+-5% 50V
C0233	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0234	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0235	0893122	CERAMIC CHIP 47PF+-5% 50V
C0237	0893126	CERAMIC CHIP 100PF+-5% 50V
C0238	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0240	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0244	0893118	CERAMIC CHIP 27PF+-5% 50V
C0245	0893131	CERAMIC CHIP 220PF+-5% 50V
C0270	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0301	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0302	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0303	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0304	0806167	ELECTROLYTIC 47UF 4V
C0305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0306	0893133	CERAMIC CHIP 330PF+-5% 50V
C0307	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0308	0893174	CERAMIC CHIP 820PF+-5% 50V
C0310	0806133	ELECTROLYTIC 10UF 6V
C0350	0806133	ELECTROLYTIC 10UF 6V
C0351	0806178	ELECTROLYTIC 220UF 4V
C0352	0806178	ELECTROLYTIC 220UF 4V
C0353	0806153	ELECTROLYTIC 10UF 16V
C0354	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0355	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0356	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0358	0806168	ELECTROLYTIC 47UF 6.3V
C0360	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0364	0806027	ELECTROLYTIC 4.7UF 4V
C0365	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0367	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0370	0893123	CERAMIC CHIP 56PF+-5% 50V
C0371	0893123	CERAMIC CHIP 56PF+-5% 50V
C0372	0893123	CERAMIC CHIP 56PF+-5% 50V
C0391	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0395	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0401L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0401R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0402L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0402R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0403	0893193	CERAMIC CHIP 0.01UF+-10% 25V [658/558/555/553]
C0403	0893208	CERAMIC CHIP 1000PF+-10% 50V[955/855/755]
C0403M	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0403R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0404L	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0404M	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0404R	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0405L	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0405R	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0406M	AD10266R	ELECTROLYTIC 22UF 4V
C0406R	0806168	ELECTROLYTIC 47UF 6.3V
C0407L	AA00698R	CERAMIC CHIP 2.2UF+-10% 16V
C0407R	AA00698R	CERAMIC CHIP 2.2UF+-10% 16V
C0408L	0806027	ELECTROLYTIC 4.7UF 4V
C0408M	0806027	ELECTROLYTIC 4.7UF 4V
C0408R	0806027	ELECTROLYTIC 4.7UF 4V
C0409L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0409M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0409R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410M	0806027	ELECTROLYTIC 4.7UF 4V
C0410R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0411L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0411M	AA00698R	CERAMIC CHIP 2.2UF+-10% 16V
C0411R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0412L	0806153	ELECTROLYTIC 10UF 16V
C0412M	0806133	ELECTROLYTIC 10UF 6V
C0412R	0806153	ELECTROLYTIC 10UF 16V
C0413M	0806027	ELECTROLYTIC 4.7UF 4V
C0413S	0806019	ELECTROLYTIC 2.2UF 10V
C0414M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0415	0893191	CERAMIC CHIP 6800PF+-10% 25V [658/558/555/553]
C0415	0893197	CERAMIC CHIP 0.022UF+-10% 25V [955/855/755]
C0416M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0416S	0806027	ELECTROLYTIC 4.7UF 4V
C0417L	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V
C0417R	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V
C0418L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0418M	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0418R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0419L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0419M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0419R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0420M	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0422M	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0422S	0806133	ELECTROLYTIC 10UF 6V
C0423M	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V
C0423S	0806133	ELECTROLYTIC 10UF 6V
C0424L	0893177	CAPACITOR 0.068UF+-10% 16V
C0424R	0893177	CAPACITOR 0.068UF+-10% 16V
C0425	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0426S	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0428	0806168	ELECTROLYTIC 47UF 6.3V
C0429M	0806133	ELECTROLYTIC 10UF 6V
C0430L	0893027	CERAMIC CHIP 0.1UF+-10% 25V
C0430R	0893027	CERAMIC CHIP 0.1UF+-10% 25V
C0431L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0431M	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V
C0431R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0432	AA00698R	CERAMIC CHIP 2.2UF+-10% 16V
C0432M	0202327	CERAMIC CHIP 0.22UF+-10% 16V

SYMBOL NO	P-NO	DESCRIPTION
C0433	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0434M	0806153	ELECTROLYTIC 10UF 16V
C0435M	0806156	ELECTROLYTIC 22UF 4V
C0436M	0893018	CERAMIC CHIP 0.022UF+-10% 25V
C0437M	0893099	CERAMIC CHIP 0.47UF+-10% 16V
C0438M	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0439M	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0440M	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0441L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0441R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0442	0806174	ELECTROLYTIC 100UF 6.3V
C0443	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0445S	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0446M	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0447M	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0448	0806163	ELECTROLYTIC 33UF 10V [658/558/555/553]
C0448	0806168	ELECTROLYTIC 47UF 6.3V[955/855/755]
C0449S	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0450S	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0451L	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0451R	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0451S	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0452S	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0462L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0462R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0463	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0467S	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0472M	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0474S	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0476L	0893195	CERAMIC CHIP 0.015UF+-10% 25V
C0476R	0893195	CERAMIC CHIP 0.015UF+-10% 25V
C0482	0806167	ELECTROLYTIC 47UF 4V
C0483S	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0484M	0806168	ELECTROLYTIC 47UF 6.3V
C0485M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0485S	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0501	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0502	0893119	CERAMIC CHIP 33PF+-5% 50V
C0503	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0504	0893119	CERAMIC CHIP 33PF+-5% 50V
C0505	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0507	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0508	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0509	0893126	CERAMIC CHIP 100PF+-5% 50V
C0510	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0511	0893183	CHIP CERAMIC 0.018PF+-10% 16V
C0513	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0514	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0516	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0517	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0518	0893129	CERAMIC CHIP 180PF+-5% 50V
C0519	0893133	CERAMIC CHIP 330PF+-5% 50V
C0520	0893129	CERAMIC CHIP 180PF+-5% 50V
C0521	0893133	CERAMIC CHIP 330PF+-5% 50V
C0522	0893129	CERAMIC CHIP 180PF+-5% 50V
C0523	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0524	0893133	CERAMIC CHIP 330PF+-5% 50V
C0525	0893129	CERAMIC CHIP 180PF+-5% 50V
C0527	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0528	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0529	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0530	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0534	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0535	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0538	0806157	ELECTROLYTIC 22UF 6.3V
C0540	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0541	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0542	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0543	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0544	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0545	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0546	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0550	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0551	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0552	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0559	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0562	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0577	0893058	CERAMIC CHIP 0.33UF+80-20% 16V
C0578	0806174	ELECTROLYTIC 100UF 6.3V
C0581	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0583	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0586	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0601	0893205	CERAMIC CHIP 560PF+-10% 50V
C0602	0806027	ELECTROLYTIC 4.7UF 4V
C0603	0893115	CERAMIC CHIP 15PF+-5% 50V
C0604	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0605	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0606	0893204	CERAMIC CHIP 470PF+-10% 50V
C0607	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0608	0893206	CERAMIC CHIP 680PF+-10% 50V
C0609	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0610	0806156	ELECTROLYTIC 22UF 4V
C0611	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0612	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0613	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0614	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0615	0893205	CERAMIC CHIP 560PF+-10% 50V
C0616	0893115	CERAMIC CHIP 15PF+-5% 50V
C0617	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0618	0893207	CERAMIC CHIP 820PF+-10% 50V
C0619	0893177	CAPACITOR 0.068UF+-10% 16V
C0622	0893123	CERAMIC CHIP 56PF+-5% 50V
C0631	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0632	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0633	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0635	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0636	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0637	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0638	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0640	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0641	0893248	CHIP CERAMIC 0.33UF+80-20% 16V
C0642	0806153	ELECTROLYTIC 10UF 16V
C0643	0806153	ELECTROLYTIC 10UF 16V
C0644	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0645	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0647	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0648	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0649	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0650	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0651	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0652	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0655	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0656	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0657	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0658	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0659	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0660	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0671	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0672	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0673	0893213	CERAMIC CHIP 2200PF+-10% 50V

SYMBOL NO	P-NO	DESCRIPTION
C0691	0893198	CERAMIC CHIP 0.027UF+-10% 25V
C0692	0893195	CERAMIC CHIP 0.015UF+-10% 25V
C0693	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0694	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0695	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0696	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0902	0806155	ELECTROLYTIC 10UF 50V
C0904	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0905	0806173	ELECTROLYTIC 100UF 4V
C0906	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0907	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0908	0806167	ELECTROLYTIC 47UF 4V
C0909	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0910	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0911	0893108	CERAMIC CHIP 6.0PF+-0.5% 50V
C0912	0893108	CERAMIC CHIP 6.0PF+-0.5% 50V
C0913	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0915	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0916	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0917	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0918	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0919	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0920	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0921	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0922	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0923	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0924	0893122	CERAMIC CHIP 47PF+-5% 50V
C0925	0893124	CHIP CERAMIC 68PF+-5% 50V
C0926	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0927	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0928	0893117	CERAMIC CHIP 22PF+-5% 50V
C0929	0893117	CERAMIC CHIP 22PF+-5% 50V
C0930	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0934	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0935	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0941	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0942	0806173	ELECTROLYTIC 100UF 4V
C0962	AD10126R	ELECTROLYTIC 100UF 6.3V
C0965	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0966	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0967	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0968	0893116	CERAMIC CHIP 18PF+-5% 50V
C0971	0806186	ELECTROLYTIC 220UF 6.3V
C0972	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0974	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0998	0806168	ELECTROLYTIC 47UF 6.3V
C0999	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1002	0806169	ELECTROLYTIC 47UF 16V
C1004	0893211	CERAMIC CHIP 1500PF+-10% 50V
C1005	0806169	ELECTROLYTIC 47UF 16V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1007	0893107	CERAMIC CHIP 5PF+-0.25% 50V [955/855/755/658]
C1007	0893113	CERAMIC CHIP 10PF+-0.5% 50V [558/555/553]
C1008	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1009	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1010	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1011	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1012	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1101	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1102	0806178	ELECTROLYTIC 220UF 4V
C1104	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1105	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1106	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1107	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1108	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1109	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1111	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1112	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1113	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C1114	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C1115	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1116	0893117	CERAMIC CHIP 22PF+-5% 50V
C1117	0893119	CERAMIC CHIP 33PF+-5% 50V[955/855/755/658]
C1117	0893121	CERAMIC CHIP 39PF+-5% 50V[558/555/553]
C1118	0893119	CERAMIC CHIP 33PF+-5% 50V[955/855/755/658]
C1118	0893121	CERAMIC CHIP 39PF+-5% 50V[558/555/553]
C1119	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1123	0806168	ELECTROLYTIC 47UF 6.3V
C1128	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1129	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1131	0806167	ELECTROLYTIC 47UF 4V
C1133	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1134	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1135	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1136	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1138	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1139	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1140	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1141	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1142	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1143	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1144	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1145	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C1146	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1148	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1149	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1150	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1151	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1153	0806167	ELECTROLYTIC 47UF 4V
C1154	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C1155	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1161	0806157	ELECTROLYTIC 22UF 6.3V
C1165	0806167	ELECTROLYTIC 47UF 4V
C1167	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1172	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1207	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1212	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1213	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1301	0806186	ELECTROLYTIC 220UF 6.3V
C1302	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1311	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1312	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1403	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1404	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1405	0806157	ELECTROLYTIC 22UF 6.3V

SYMBOL NO	P-NO	DESCRIPTION
C1406	0806157	ELECTROLYTIC 22UF 6.3V
C1407	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1408	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1409	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1410	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1411	0206647	ELECTROLYTIC 10UF 10V
C1412	0206647	ELECTROLYTIC 10UF 10V
C1413	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1414	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1415	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1417	0806157	ELECTROLYTIC 22UF 6.3V
C1418	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1419	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1420	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C5304	0893062	CERAMIC CHIP 1UF+80-20% 16V
C5305	0893173	CERAMIC CHIP 680PF+-5% 50V
C5306	0806133	ELECTROLYTIC 10UF 6V
C5308	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5309	0893246	CERAMIC CHIP 0.047UF+80-20% 50V
C5310	AA01121R	CERAMIC CHIP 0.047UF
C5312	0806113	ELECTROLYTIC 1UF 25V
C5313	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5314	0893111	CERAMIC CHIP 8PF+-0.5% 50V
C5315	AA01121R	CERAMIC CHIP 0.047UF
C5316	AA01121R	CERAMIC CHIP 0.047UF
C5317	AA01121R	CERAMIC CHIP 0.047UF
C5317	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5318	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5319	AD10263R	ELECTROLYTIC 10UF 10V
C5320	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5321	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5322	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5323	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5324	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5325	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5326	0893191	CERAMIC CHIP 6800PF+-10% 25V
C5327	0806024	ELECTROLYTIC 3.3UF 6.3V
C5328	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5330	0893173	CERAMIC CHIP 680PF+-5% 50V
C5331	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5332	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5333	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5334	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5335	0893125	CERAMIC CHIP 82PF+-5% 50V
C5336	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C5337	0806129	ELECTROLYTIC 22UF 10V
C5338	0806129	ELECTROLYTIC 22UF 10V
C5340	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5341	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5342	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5343	0893175	CERAMIC CHIP 1000PF+-5% 50V
C5390	0806133	ELECTROLYTIC 10UF 6V
C5401	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5402	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5403	0806133	ELECTROLYTIC 10UF 6V
C5404	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5405	0806122	ELECTROLYTIC 68UF 6.3V
C5406	0893095	CERAMIC CHIP 0.33UF+-10% 16V
C5407	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5408	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5409	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5410	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5411	AD10275R	ELECTROLYTIC 10UF 20V
C5412	0893116	CERAMIC CHIP 18PF+-5% 50V
C5413	0893127	CERAMIC CHIP 120PF+-5% 50V
C5414	0893208	CERAMIC CHIP 1000PF+-10% 50V
C5415	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C5416	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5417	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5418	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5419	0893062	CERAMIC CHIP 1UF+80-20% 16V
C5420	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5421	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5422	AD10275R	ELECTROLYTIC 10UF 20V
C5501	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5502	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5503	0806122	ELECTROLYTIC 68UF 6.3V
C5504	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C5505	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5506	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5507	AD10263R	ELECTROLYTIC 10UF 10V
C5508	0893062	CERAMIC CHIP 1UF+80-20% 16V
C5509	0893116	CERAMIC CHIP 18PF+-5% 50V
C5510	0893118	CERAMIC CHIP 27PF+-5% 50V
C5511	AD10276R	ELECTROLYTIC 33UF 10V
C5512	0893062	CERAMIC CHIP 1UF+80-20% 16V
C5513	AF10112R	CAPACITOR 0.01UF+-5% 50V
C5514	AA10644R	CERAMIC CHIP 12PF+-5% 3KV [955]
C5514	AA10645R	CERAMIC CHIP 10PF+-5%[EXCEPT FOR 955]
C5515	AF10112R	CAPACITOR 0.01UF+-5% 50V
C5516	AF10112R	CAPACITOR 0.01UF+-5% 50V
C5517	AF10112R	CAPACITOR 0.01UF+-5% 50V
C5518	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C5519	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C5603	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5604	0806133	ELECTROLYTIC 10UF 6V
C5605	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5606	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5607	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5608	AD10256R	ELECTROLYTIC 3.3UF 20V
C5609	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5610	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5611	0893208	CERAMIC CHIP 1000PF+-10% 50V
C5512	0893126	CERAMIC CHIP 100PF+-5% 50V [955]
C5612	0893125	CERAMIC CHIP 82PF+-5% 50V[EXCEPT FOR 955]
C5613	0893215	CERAMIC CHIP 3300PF+-10% 50V
C5615	0806113	ELECTROLYTIC 1UF 25V
C5616	0806113	ELECTROLYTIC 1UF 25V
C5617	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5619	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5620	AD10274R	ELECTROLYTIC 6.8UF 20V
C5621	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5622	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5623	0806117	ELECTROLYTIC 3.3UF 16V
C5624	0893126	CERAMIC CHIP 100PF+-5% 50V
C5625	0893115	CERAMIC CHIP 15PF+-5% 50V [955]
C5625	0893119	CERAMIC CHIP 33PF+-5% 50V [855/658]
C5625	0893123	CERAMIC CHIP 56PF+-5% 50V [755/558/555/553]
C5626	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C5627	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C5628	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C5629	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C5630	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C5631	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C5701	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C5702	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C5711	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C9401	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C9450	0806133	ELECTROLYTIC 10UF 6V

SYMBOL NO	P-NO	DESCRIPTION
R0001	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0002	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0003	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0006	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0007	0103978	CHIP RESISTOR 3.3OHM+-5% 1/8W
R0008	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0009	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0010	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0011	0105192	CHIP RESISTOR 1KOHM+-0.5% 1/16W
R0012	0104724	CHIP RESISTOR 10KOHM+-1% 1/16W
R0013	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
R0014	0105192	CHIP RESISTOR 1KOHM+-0.5% 1/16W
R0017	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0018	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0020	AQ10405R	CHIP RESISTOR 0.10OHM 1/4W
R0024	AQ10633R	CHIP RESISTOR 56KOHM+-0.5% 1/16W
R0025	0105217	CHIP RESISTOR 150KOHM+-0.5% 1/16W
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0105	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0110	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0113	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0114	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
R0122	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0127	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0128	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0130	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0131	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0132	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0139	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0140	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0141	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W [658/558/555/553]
R0141	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W [955/855/755]
R0142	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0144	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0145	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0146	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0147	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0149	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0150	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0151	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0152	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0157	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0158	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0159	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0160	0790027	CHIP RESISTOR 180OHM+-5% 1/16W
R0161	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0163	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0164	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0165	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0167	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0168	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0170	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0171	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0172	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0173	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0174	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0175	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0176	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0185	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0188	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0190	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0191	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0194	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0195	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0196	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0197	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0198	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0199	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0201	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0202	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0203	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0205	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0206	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0207	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0208	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0209	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0210	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0211	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0212	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0214	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0215	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0219	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0220	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0222	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0225	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0227	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0230	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0231	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0232	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0233	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0234	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0238	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0239	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0243	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0262	BM00141R	FILTER
R0263	BM00141R	FILTER
R0265	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0266	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0267	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0268	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0269	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0271	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0272	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0301	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0302	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0303	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0305	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0310	0790018	CHIP RESISTOR 39 OHM+-5% 1/16W
R0311	0790018	CHIP RESISTOR 39 OHM+-5% 1/16W
R0312	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0315	AQ00247R	CHIP RESISTOR 100KOHM+-1% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0350	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0351	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0354	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0361	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0362	0104084	CHIP RESISTOR 2.2MOHM+-5% 1/16W
R0374	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0391	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0397	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0402L	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0402M	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0402R	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0403R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0405S	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0408S	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0409S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0410M	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0410S	0104121	CHIP RESISTOR 27KOHM+-1% 1/10W
R0412M	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W
R0413L	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0413R	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0414S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0415S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0417L	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0417M	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0417R	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0418L	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0418M	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0418R	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0419L	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0419R	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0420L	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0420M	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0420R	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0421L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0421R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0422M	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0423M	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0424M	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0425M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0428M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0429R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0430M	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0432	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W [658/558/555/553]
R0432	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W [955/855/755]
R0433	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0435S	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0436M	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0436R	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0437M	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0445S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0447S	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0449	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0451M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0453M	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0455M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0458M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0459M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0460	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0461	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0461M	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0462	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0471	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0472	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0472M	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0473	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0474	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0475	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0475M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0476	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0476M	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0480S	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0481S	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0483	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0483	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W [658/558/555/553] [955/855/755]
R0486S	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0487S	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0488L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0488R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0489L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0489R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0490L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0490R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0491L	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0491R	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0492L	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0492R	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0493L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0493R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0494L	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0494R	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0497	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0501	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0502	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0504	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0505	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0508	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0510	AQ00238R	CHIP RESISTOR 47KOHM+-1% 1/16W
R0511	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0512	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0513	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0514	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0516	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0517	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0518	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0519	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0522	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0525	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0529	AQ00211R	CHIP RESISTOR 4.3KOHM+-1% 1/16W
R0531	0105192	CHIP RESISTOR 1KOHM+-0.5% 1/16W
R0532	0104723	CHIP RESISTOR 4.7KOHM+-1% 1/16W
R0533	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0534	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0539	0104724	CHIP RESISTOR 10KOHM+-1% 1/16W
R0540	0105192	CHIP RESISTOR 1KOHM+-0.5% 1/16W
R0541	0104723	CHIP RESISTOR 4.7KOHM+-1% 1/16W
R0545	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0546	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0549	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0550	AQ10274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0551	0105207	CHIP RESISTOR 6800HM 1/16W
R0552	0104723	CHIP RESISTOR 4.7KOHM+-1% 1/16W
R0556	AQ00198R	CHIP RESISTOR 1.5KOHM+-1% 1/16W
R0557	AQ00192R	CHIP RESISTOR 820 OHM+-1% 1/16W
R0558	AQ00214R	CHIP RESISTOR 5.6KOHM+-1% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0561	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0562	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0566	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0567	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0568	0104723	CHIP RESISTOR 4.7KOHM+-1% 1/16W
R0569	AQ00213R	CHIP RESISTOR 5.1KOHM+-1% 1/16W
R0583	0790023	CHIP RESISTOR 82 OHM+-5% 1/16W
R0585	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0597	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0598	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0599	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0601	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0602	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0603	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0604	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0605	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0606	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R0607	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0608	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0609	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0610	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R0611	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0612	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0613	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0614	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0616	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0619	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0620	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0621	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0622	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0623	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0624	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0628	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0640	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0641	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0642	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0643	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0644	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0662	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0664	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R0665	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R0666	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R0667	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0668	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0671	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0691	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0692	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0693	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0694	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0695	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0696	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0701	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0702	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0703	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0706	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0707	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0709	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0717	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0718	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0719	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0721	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0722	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0723	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0724	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0725	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0728	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0733	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0903	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0904	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0906	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0907	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0908	0105217	CHIP RESISTOR 150KOHM+-0.5% 1/16W
R0909	AQ10633R	CHIP RESISTOR 56KOHM+-0.5% 1/16W
R0912	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0917	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0918	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0919	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0920	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0921	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0922	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0923	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0924	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0925	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0926	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0928	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0929	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0930	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0931	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0932	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0933	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0934	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0935	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0938	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0939	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0941	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0942	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0943	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0945	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0948	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0949	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0950	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0951	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0952	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0954	AQ00245R	CHIP RESISTOR 82KOHM+-1% 1/16W
R0955	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R0956	AQ00234R	CHIP RESISTOR 33KOHM+-1% 1/16W
R0957	AQ00247R	CHIP RESISTOR 100KOHM+-1% 1/16W
R0958	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R0959	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0960	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0963	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0965	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0966	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R0967	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0968	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R0969	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0970	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0971	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0972	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0973	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0974	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0975	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0976	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0977	0790017	CHIP RESISTOR 33 OHM+-5% 1/16W
R0978	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0979	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0980	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0981	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0982	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0983	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0984	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0985	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0986	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0987	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0988	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0989	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0990	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0992	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0993	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0994	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0995	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0999	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1003	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1006	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1009	0103823	CHIP RESISTOR 22OHM+-5% 0.1W
R1101	AQ00231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R1112	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1113	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1114	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1115	0790012	CHIP RESISTOR 12 OHM+-5% 1/16
R1116	0790012	CHIP RESISTOR 12 OHM+-5% 1/16
R1117	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1118	BM00137R	FILTER
R1119	BM00137R	FILTER
R1120	0790011	CHIP RESISTOR 10 OHM+-5% 1/16W
R1121	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1131	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1132	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1133	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1134	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1135	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1136	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1137	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1138	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1139	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1141	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1143	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1145	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1146	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1147	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1148	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1150	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1151	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1152	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1153	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1154	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1155	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1156	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1157	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1158	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1159	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1160	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1161	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R1163	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1164	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1166	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1167	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1168	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1169	AQ00194R	CHIP RESISTOR 1.0KOHM+-1% 1/16W
R1170	AQ00194R	CHIP RESISTOR 1.0KOHM+-1% 1/16W
R1171	AQ00198R	CHIP RESISTOR 1.5KOHM+-1% 1/16W
R1172	AQ00198R	CHIP RESISTOR 1.5KOHM+-1% 1/16W
R1173	AQ00229R	CHIP RESISTOR 22KOHM+-1% 1/16W
R1175	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1176	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1180	BM00141R	FILTER
R1181	BM00141R	FILTER
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1202	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1208	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1209	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1211	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1212	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1216	AQ00231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1220	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1221	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1223	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1225	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1226	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1227	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1303	AQ00214R	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1312	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1313	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1316	0790027	CHIP RESISTOR 180OHM+-5% 1/16W
R1317	0790027	CHIP RESISTOR 180OHM+-5% 1/16W
R1403	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1404	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1405	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1406	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1407	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1408	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1409	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R1410	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R1411	AQ00267R	CHIP RESISTOR 560KOHM 0.063W
R1412	AQ00267R	CHIP RESISTOR 560KOHM 0.063W
R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1418	AQ00224R	CHIP RESISTOR 13KOHM+-1% 1/16W
R1419	AQ00224R	CHIP RESISTOR 13KOHM+-1% 1/16W
R1420	AQ00222R	CHIP RESISTER 11KOHM+-1% 1/16W
R1421	AQ00222R	CHIP RESISTER 11KOHM+-1% 1/16W
R1424	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1425	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5301	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5302	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5304	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R5307	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R5308	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R5309	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5310	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5313	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R5314	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R5315	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R5316	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5317	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5318	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5319	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R5320	AQ00234R	CHIP RESISTOR 33KOHM+-1% 1/16W
R5325	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R5326	AQ00238R	CHIP RESISTOR 47KOHM+-1% 1/16W
R5331	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W
R5332	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5336	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
R5338	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R5339	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5340	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R5343	0104256	CHIP RESISTOR 10MOHM+-5% 1/10W
R5345	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5346	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5347	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R5349	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R5351	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W
R5354	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R5357	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R5361	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5362	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R5363	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5364	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5365	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5366	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5367	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5390	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R5401	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5402	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R5404	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5405	AQ10634R	CHIP RESISTOR 120KOHM+-0.5% 1/16W
R5406	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R5407	0104727	CHIP RESISTOR 15KOHM+-1% 1/16W
R5408	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R5409	AQ10632R	CHIP RESISTOR 33KOHM+-0.5% 1/16W
R5410	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R5411	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5412	0105213	CHIP RESISTOR 5.6KOHM+-0.5% 1/16W
R5413	0105215	CHIP RESISTOR 47KOHM+-5% 1/16W
R5414	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R5415	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5416	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R5417	0104251	CHIP RESISTOR 2.2 OHM+-5% 1/10W
R5420	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5501	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5502	AQ10634R	CHIP RESISTOR 120KOHM+-0.5% 1/16W
R5503	AQ10631R	CHIP RESISTOR 27KOHM+-0.5% 1/16W
R5504	0105196	CHIP RESISTOR 6.8KOHM+-0.5% 1/16W
R5505	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5506	0105193	CHIP RESISTOR 1.8KOHM+-0.5% 1/16W
R5507	0105209	CHIP RESISTOR 3.3KOHM+-0.5% 1/16W
R5508	0105196	CHIP RESISTOR 6.8KOHM+-0.5% 1/16W
R5509	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R5510	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5511	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R5512	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R5513	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5514	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R5515	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5518	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5519	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5522	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5523	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5524	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5525	0105572	METAL FILM RESISTOR 2.7KOHM+-1% 1/10W
R5526	0105572	METAL FILM RESISTOR 2.7KOHM+-1% 1/10W
R5529	AQ00181R	CHIP RESISTOR 330 OHM+-1% 1/16W
R5601	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5603	0790011	CHIP RESISTOR 10 OHM+-5% 1/16W
R5610	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5611	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5612	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5615	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5616	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R5617	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5618	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5619	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R5620	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5621	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R5622	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5623	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5625	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5627	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5631	AQ10635R	CHIP RESISTOR 270KOHM+-5% 1/16W
R5632	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5633	AQ10633R	CHIP RESISTOR 56KOHM+-0.5% 1/16W
R5634	0105215	CHIP RESISTOR 47KOHM+-5% 1/16W
R5635	0104721	CHIP RESISTOR 100KOHM+-0.5% 1/16W
R5636	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R5637	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5638	AQ10632R	CHIP RESISTOR 33KOHM+-0.5% 1/16W
R5639	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R5642	AQ10632R	CHIP RESISTOR 33KOHM+-0.5% 1/16W
R5643	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R5644	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5651	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5654	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5655	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5656	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5657	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5658	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R5708	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R5716	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W [955]
R5708	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W [EXCEPT FOR 955]
R5709	BM00142R	FILTER [955]
R5709	BM00141R	FILTER [755,558,555,553]
R5717	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5718	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R5719	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5720	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R5721	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R5722	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R5723	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R5724	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R9401	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R9402	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R9403	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R9404	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
D0001	5337372	DIODE SB07-03C
D0002	CC10291R	DIODE 1SS353

SYMBOL NO	P-NO	DESCRIPTION
D0003	5337422	DIODE DA221
D0101	5337422	DIODE DA221
D0203	5337421	DIODE DAN222
D0204	5337352	DIODE MA132WA
D0205	5337352	DIODE MA132WA
D0206	CC10291R	DIODE 1SS353
D0207	CC10291R	DIODE 1SS353
D0552	5337352	DIODE MA132WA
D0553	5337352	DIODE MA132WA
D0901	5337352	DIODE MA132WA
D0902	CC10291R	DIODE 1SS353
D0907	5337372	DIODE SB07-03C
D0909	CC10291R	DIODE 1SS353
D0910	CC10291R	DIODE 1SS353
D1002	CC10291R	DIODE 1SS353
D1101	5337352	DIODE MA132WA
D1103	5337352	DIODE MA132WA
D1105	5337352	DIODE MA132WA
D1106	5337352	DIODE MA132WA
D1301	5337422	DIODE DA221
D1302	CC10291R	DIODE 1SS353
D5301	CC10331R	DIODE HVU200A
D5401	CC10291R	DIODE 1SS353
D5402	CC10291R	DIODE 1SS353
D5403	5326022	DIODE MA160-M1D
D5404	5337351	DIODE MA132WK
D5501	CC10291R	DIODE 1SS353
D5601	CC10331R	DIODE HVU200A
D5602	CC10331R	DIODE HVU200A
IC0001	CK22711R	IC MM6564XFBE
IC0101	1366631	IC HA118189MP
IC0102	CK21231R	IC UPC5023GS146
IC0201	CK21292U	IC HG73C061TE
IC0202	CK22721U	IC MSM54V16258A45
IC0203	CK21261R	IC BA7071F
IC0204	CK21251R	IC UPC5023GS153
IC0401	CK12241	IC HA118193F [955/855/755]
IC0401	CK20272R	IC LA7458W [658/558/555/553]
IC0402S	CK16471R	IC TDA7052AT
IC0403S	CK22341R	IC NJM2112V-TE1
IC0551	CK16251U	IC BA9735KV
IC0553	CK20191R	IC PQ20WZ51
IC0601	CK18321R	IC UPC5023GS-122-E1
IC0631	CK18331R	IC LB1950V-TLR
IC0651	CK22031R	IC LB1991V
IC0671	1366651	IC BA6417F
IC0901	CK21316U	IC CXP87248A-E4R
IC0902	CK21711R	IC NJU7284EV(TE1)
IC0904	CK16993R	IC UPD6461GS-942-E1
IC0904	CK16994R	IC UPD6461GS-941-E1
IC0906	CK18301R	IC SN74AHC126PW
IC0907	CE10171R	MODULE GP1U101X
IC1101	CK21332U	IC HD49323AF
IC1102	CK20631U	IC HG73C012TE
IC1103	CK12061R	IC UPD16510GR
IC1104	CK22353U	IC HD6432237M03TE
IC1105	CK21351R	IC X25097V1-2.7
IC1201	CK20621R	IC UPD5023GS-147-GJG
IC1301	CK17992R	IC UPD16833AG3
IC1401	FU10321	SENSOR GYRO (ENC-03JA-03)
IC1402	FU10322	SENSOR GYRO (ENC-03JB-03)
IC1403	CK21271R	IC NJM064V
IC5301	CK18373U	IC IR3Y29BM
IC5302	CK16691R	IC M62352GP
IC5401	CK18431R	IC TL5001CD

SYMBOL NO	P-NO	DESCRIPTION
IC5501	CK18431R	IC TL5001CD
IC5502	1351761	IC NJM2406F
IC5601	CK22411U	IC LZ9GH20 [955]
IC5601	CK22421U	IC LZ9GH18 [755/558/555/553]
IC5601	CK21941U	IC LZ9GH16 [855/658]
IC5602	CK15331R	IC NJM3414AV
Q0001	CA11671R	TRANSISTOR FY4ADJ-03A
Q0002	CA10271R	TRANSISTOR 2SB1424
Q0003	1323279	TRANSISTOR DTC114YE
Q0004	CA11661R	TRANSISTOR 2SK2035
Q0101	1323301	TRANSISTOR 2SB1219
Q0102	1323294	TRANSISTOR 2SA1774RS
Q0103	1323294	TRANSISTOR 2SA1774RS
Q0104	1323286	TRANSISTOR UMH9N
Q0105	1323301	TRANSISTOR 2SB1219
Q0107	1323291	TRANSISTOR 2SC4617
Q0108	1323279	TRANSISTOR DTC114YE
Q0109	1323294	TRANSISTOR 2SA1774RS
Q0110	CA11273R	TRANSISTOR 2SA1037K-S
Q0111	1323283	TRANSISTOR UMH1N
Q0112	1323291	TRANSISTOR 2SC4617
Q0113	1323294	TRANSISTOR 2SA1774RS
Q0116	1323279	TRANSISTOR DTC114YE
Q0117	1323279	TRANSISTOR DTC114YE
Q0118	1323291	TRANSISTOR 2SC4617
Q0119	1323291	TRANSISTOR 2SC4617
Q0123	1323252	TRANSISTOR XP4501
Q0130	1323279	TRANSISTOR DTC114YE
Q0131	1323279	TRANSISTOR DTC114YE
Q0133	1323287	TRANSISTOR UMD9N
Q0139	1323286	TRANSISTOR UMH9N
Q0140	1323291	TRANSISTOR 2SC4617
Q0144	1323294	TRANSISTOR 2SA1774RS
Q0203	1323294	TRANSISTOR 2SA1774RS
Q0206	1323252	TRANSISTOR XP4501
Q0395	1323279	TRANSISTOR DTC114YE
Q0401L	1323279	TRANSISTOR DTC114YE
Q0401R	1323279	TRANSISTOR DTC114YE
Q0402	1323279	TRANSISTOR DTC114YE
Q0403L	1323291	TRANSISTOR 2SC4617
Q0403M	1323292	TRANSISTOR 2SA1774
Q0403R	1323291	TRANSISTOR 2SC4617
Q0404	1323291	TRANSISTOR 2SC4617
Q0411	1323301	TRANSISTOR 2SB1219
Q0412	1323279	TRANSISTOR DTC114YE
Q0414S	1323279	TRANSISTOR DTC114YE
Q0415	1323291	TRANSISTOR 2SC4617
Q0417M	1323292	TRANSISTOR 2SA1774
Q0551	1308011	TRANSISTOR MPL1
Q0552	CA10271R	TRANSISTOR 2SB1424
Q0553	1308011	TRANSISTOR MPL1
Q0555	CA10271R	TRANSISTOR 2SB1424
Q0556	1323279	TRANSISTOR DTC114YE
Q0557	CA10271R	TRANSISTOR 2SB1424
Q0558	1323291	TRANSISTOR 2SC4617
Q0559	1308011	TRANSISTOR MPL1
Q0561	1308011	TRANSISTOR MPL1
Q0562	1308011	TRANSISTOR MPL1
Q0563	1323279	TRANSISTOR DTC114YE
Q0570	CA10271R	TRANSISTOR 2SB1424
Q0571	1323291	TRANSISTOR 2SC4617
Q0602	1323294	TRANSISTOR 2SA1774RS
Q0603	1323291	TRANSISTOR 2SC4617
Q0604	1323291	TRANSISTOR 2SC4617
Q0901	1323294	TRANSISTOR 2SA1774RS

SYMBOL NO	P-NO	DESCRIPTION
Q0902	1323291	TRANSISTOR 2SC4617
Q0904	1323294	TRANSISTOR 2SA1774RS
Q0905	5328975	TRANSISTOR 2SC2412K
Q0907	1323279	TRANSISTOR DTC114YE
Q0909	1323279	TRANSISTOR DTC114YE
Q0911	1323291	TRANSISTOR 2SC4617
Q0913	1323287	TRANSISTOR UMD9N
Q0914	1323279	TRANSISTOR DTC114YE
Q0915	1323279	TRANSISTOR DTC114YE
Q0916	1323291	TRANSISTOR 2SC4617
Q0917	1323287	TRANSISTOR UMD9N
Q1001	5328221	TRANSISTOR 2SC2620-QC
Q1201	1323291	TRANSISTOR 2SC4617
Q1202	1323291	TRANSISTOR 2SC4617
Q1203	1323142	TRANSISTOR 2SC2411K
Q1301	1323286	TRANSISTOR UMH9N
Q1401	1323279	TRANSISTOR DTC114YE
Q1402	1323252	TRANSISTOR XP4501
Q5301	1323294	TRANSISTOR 2SA1774RS
Q5302	1323271	TRANSISTOR DTC144EE
Q5303	1323293	TRANSISTOR 2SC4617 (R/S)
Q5304	1323293	TRANSISTOR 2SC4617 (R/S)
Q5390	1323271	TRANSISTOR DTC144EE
Q5401	1323272	TRANSISTOR DTA144EE
Q5402	1323271	TRANSISTOR DTC144EE
Q5403	1323294	TRANSISTOR 2SA1774RS
Q5404	1323271	TRANSISTOR DTC144EE
Q5405	1323293	TRANSISTOR 2SC4617 (R/S)
Q5406	CA10793R	TRANSISTOR 2SB1122ST
Q5501	1323272	TRANSISTOR DTA144EE
Q5502	1323279	TRANSISTOR DTC114YE
Q5503	1323271	TRANSISTOR DTC144EE
Q5504	1323271	TRANSISTOR DTC144EE
Q5505	1323293	TRANSISTOR 2SC4617 (R/S)
Q5506	1323293	TRANSISTOR 2SC4617 (R/S)
Q5507	1323271	TRANSISTOR DTC144EE
Q5509	1323271	TRANSISTOR DTC144EE
Q5510	1323293	TRANSISTOR 2SC4617 (R/S)
Q5511	CA10771R	TRANSISTOR FP102-TL
Q5512	1323012	TRANSISTOR 2SC3647
Q5513	1323012	TRANSISTOR 2SC3647
Q5607	1323279	TRANSISTOR DTC114YE
Q5611	1323279	TRANSISTOR DTC114YE
Q5612	1323279	TRANSISTOR DTC114YE
Q5613	1323279	TRANSISTOR DTC114YE
Q5614	1323279	TRANSISTOR DTC114YE
Q5615	1323272	TRANSISTOR DTA144EE
Q9401	1323291	TRANSISTOR 2SC4617
ZD0404	CC10947R	DIODE MA8075
ZD0405	CC10937R	ZENER DIODE MA8056-M
ZD5601	CC10575R	DIODE RD5.1UMB2
ZD5701	CC10448R	DIODE MA3056M
T0551	5148333	TRANSFORMAR,POWER
T5401	BC10211R	TRANSFORMER,DC
T5501	BC10301R	COIL
L0101	BA10334R	COIL 10UH
L0102	BA10582R	COIL 47UH
L0103	BA10148R	COIL 27UH
L0105	0773117	CHOKE COIL 8.2UH+-5%
L0107	BA10315R	COIL 150UH
L0108	0773135	CHOKE COIL 180UH+-5%
L0109	BA10317R	COIL 330UH
L0110	BA10147R	COIL 22UH
L0113	BA10149R	COIL 33UH
L0114	BA10147R	COIL 22UH

SYMBOL NO	P-NO	DESCRIPTION
L0116	BA10145R	COIL
L0117	BA10154R	COIL 82UH
L0118	BA10318R	COIL 470UH
L0201	BA10582R	COIL 47UH
L0202	BA10582R	COIL 47UH
L0203	BA10582R	COIL 47UH
L0204	BA10142R	COIL
L0205	BA10141R	COIL 100UH
L0207	BA10582R	COIL 47UH
L0208	BA10582R	COIL 47UH
L0301	BA10582R	COIL 47UH
L0350	BA10582R	COIL 47UH
L0401	BA10582R	COIL 47UH
L0403	BA10582R	COIL 47UH
L0405	BA10334R	COIL 10UH
L0551	BA10691R	COIL
L0552	BA10693R	COIL
L0554	BA10695R	COIL
L0556	BA10691R	COIL
L0558	BA10577R	COIL 10UH
L0559	BA10582R	COIL 47UH
L0560	BA10582R	COIL 47UH
L0561	BA10695R	COIL
L0563	BA10691R	COIL
L0564	BA10695R	COIL
L0565	BA10695R	COIL
L0601	BA10579R	COIL 22UH
L0902	BA10145R	COIL
L0903	BA10334R	COIL 10UH
L0904	BA10577R	COIL 10UH
L0906	BA10579R	COIL 22UH
L0907	BA10577R	COIL 10UH
L0908	BA10336R	COIL 47UH
L0909	BA10334R	COIL 10UH
L1101	BA10336R	COIL 47UH
L1102	BA10577R	COIL 10UH
L1104	BA10334R	COIL 10UH
L1105	BA10577R	COIL 10UH
L1106	BA10577R	COIL 10UH
L1107	BA10577R	COIL 10UH
L1108	BA10577R	COIL 10UH
L1301	0773002	COIL 22UH
L5301	BA10577R	COIL 10UH
L5302	BA10582R	COIL 47UH
L5304	BA10149R	COIL 33UH
L5305	BA10577R	COIL 10UH
L5401	BA10577R	COIL 10UH
L5402	BA10584R	COIL 100UH
L5403	BA10584R	COIL 100UH
L5404	BA10584R	COIL 100UH
L5501	BA10333R	COIL 4.7UH
L5502	BA10136R	COIL 22UH
L5503	BA10137R	COIL 150UH
L5601	BA10577R	COIL 10UH
L5602	BA10577R	COIL 10UH
L5603	BA10577R	COIL 10UH
L5604	BA10156R	COIL 2.7UH [955]
L5604	BA10148R	COIL 27UH [755/558/555/553]
L5604	BA10146R	COIL 18UH [855/658]
LED0901	CC11251R	DIODE SML-010MT
LED0902	CC10771R	DIODE SML-010LT
X0201	BL10932R	CRYSTAL
X0901	BL10572R	CRYSTAL
X0902	BL10311R	CRYSTAL
X5301	BL10193R	CRYSTAL

SYMBOL NO	P-NO	DESCRIPTION
BL0394	BM00136R	FILTER
BL0395	BM00136R	FILTER
BL0902	BM00142R	FILTER
BL0903	BM00142R	FILTER
⚠F0551	FM10211R	FUSE
⚠F0552	FM10211R	FUSE
⚠F0553	FM10211R	FUSE
JK0200	5695292	JACK
PG0001	1830309	CONNECTOR
PG0101	EA11472R	PLUG
PG0201	1830109	CONNECTOR
PG0401	5668671	MINI PLUG [658/558/555/553]
PG0401	5668673	MINI PLUG [955/855/755]
PG0402	5669191	PLUG
PG0405	EA10942	PLUG
PG0552	5668671	MINI PLUG
PG0601	5692362	MINI PLUG
PG0602	EA11474R	PLUG
PG0603	EA11471R	PLUG
PG0604	5668671	MINI PLUG
PG0701	5668672	PLUG
PG0901	EA11473R	PLUG
PG0902	EA10653R	PLUG
PG0903	5669193	MINI PLUG
PG0904	5669198	PLUG
PG0907	5668672	PLUG
PG0908	5669031	MINI PLUG
PG1001	1830117	CONNECTOR
PG1101	1830118	CONNECTOR
PG1103	1830355	PLUG
PG1104	5668751	MINI PLUG
PG1105	5669166	PLUG
PG1106	5669191	PLUG
PG1301	EA10346R	PLUG
PG5301	EA10133R	PLUG
PG5501	EA10132R	PLUG
PG5701	5669198	PLUG
PG5702	EA11071R	PLUG
PG5703	5669191	PLUG
SW0701	FB10201R	SWITCH
SW0702	FB10201R	SWITCH
SW0902	FB10271R	SWITCH
SW0903	FB10271R	SWITCH
SW0904	FB10271R	SWITCH
SW0905	FB10271R	SWITCH
SW1101	1742011	SWITCH
SW1102	5621951	SWITCH
SW5701	FB10201R	SWITCH
SW5702	5634862	SWITCH
SW5703	5634862	SWITCH
SW5704	FC10161R	SWITCH
		B/W EVF[EMQ]SECTION
C2001	0806169	ELECTROLYTIC 47UF 16V
C2002	0806169	ELECTROLYTIC 47UF 16V
C2003	0806146	ELECTROLYTIC 2.2UF 50V
C2004	0268437	POLYPROPYLENE 4700PF+-5%50V
C2005	0207709	CAPACITOR 47UF+-20% 35V
C2006	0249655	CERAMIC CHIP 1000PF+-10% 1000V
C2007	0249656	CERAMIC CHIP 1000PF+-10% 500V
C2008	0806146	ELECTROLYTIC 2.2UF 50V
C2009	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2011	0209852	CERAMIC CHIP 180PF+-5% 50V
C2012	0893086	CERAMIC CHIP 0.1UF+80-20% 50V

SYMBOL NO	P-NO	DESCRIPTION
C2013	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2014	0880194	CAPACITOR 0.1UF+-5% 50V
C2015	0202151	CERAMIC CHIP 2200PF+-5% 50V
C2016	0893044	CERAMIC CHIP 0.01UF+-10% 50V
C2017	0806145	ELECTROLYTIC 1UF 50V
C2018	0893062	CERAMIC CHIP 1UF+80-20% 16V
R2002	0103869	CHIP RESISTOR 150KOHM+-5% 0.1W
R2003	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R2004	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2005	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2006	0103819	CHIP RESISTOR 10 OHM+-5% 0.1W
R2007	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2008	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2009	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R2011	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2012	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R2013	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2014	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R2015	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2016	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R2017	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R2018	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2019	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R2020	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R2022	0103831	CHIP RESISTOR 100 OHM+-5% 0.1W
R2023	0103882	JUMPER CHIP RESISTOR
R2024	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2025	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R2026	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2027	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
RT2001	5035204	SEMI VARIABLE 2.2MOHM
RT2002	5030251	SEMI VARIABLE 1MOHM
RT2003	5040103	SEMI VARIABLE 470 OHM
D2001	5337137	DIODE MA141K
D2002	5337322	DIODE MA199
IC2001	1365881	IC HA118179F
Q2001	5323831	TRANSISTOR 2SD974
Q2002	5326685	TRANSISTOR XN1B301
⚠T2001	5240568	TRANS
L2001	0773003	COIL 47UH
L2002	5244016	COIL
⚠CS2001	EF11242	SOCKET,CRT
PG2001	5669631	CONNECTOR
PG2002	5668469	PLUG
⚠TF2001	5721352	FUSE

CHAPTER 6 SCHEMATIC, CIRCUIT BOARD AND BLOCK DIAGRAMS/ MICROPROCESSOR PIN FUNCTION TABLES

Cautions when using schematic diagrams

Caution for safety

The parts marked ⚠ are critical for safety. Be sure to use the specified parts to ensure safety when replacing them.

1. Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication ..... Ω K ..... k Ω M ..... M Ω
Tolerance	No indication ..... ±5% (All tolerances other than ± 5% are indicated in the schematic diagrams)
Power capacitance	No indication ..... 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in the schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication ..... μF P ..... pF
Dielectric strength	No indication ..... 50V (All dielectric strengths other than 50V are indicated in the schematic diagrams.)

[Coils]

Item	Indication
Value	μ ..... μH m ..... mH

Cautions when using circuit board diagrams

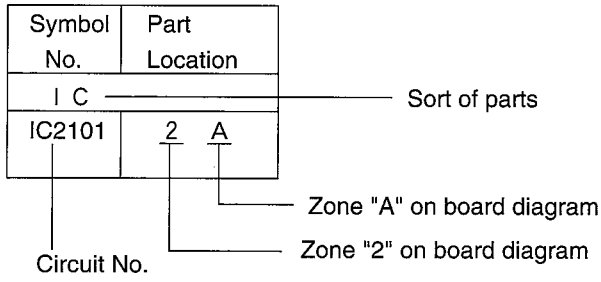
1. Identifications of sides A/B in circuit board diagrams

1) Board having a pattern on one side and parts on both sides.
   - Side A: Shows discrete parts, viewed from the pattern side.
   - Side B: Shows leadless parts, viewed from the pattern side.
2) Board having patterns on both sides and parts on both sides.
   - Side A: Shows parts and patterns which can be seen when the case is opened.
   - Side B: Shows parts and the pattern on the back of side A.

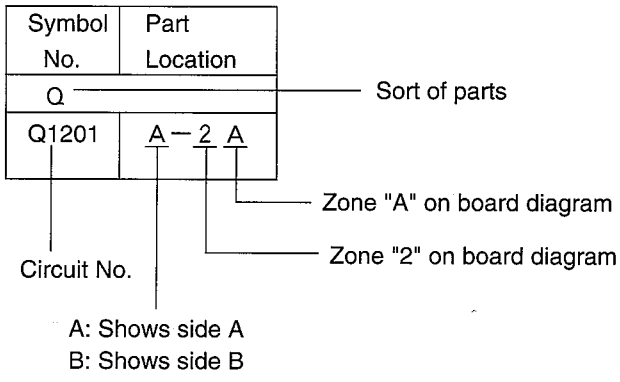
2. Table for indexing locations of parts

This table shows locations of each part on the circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

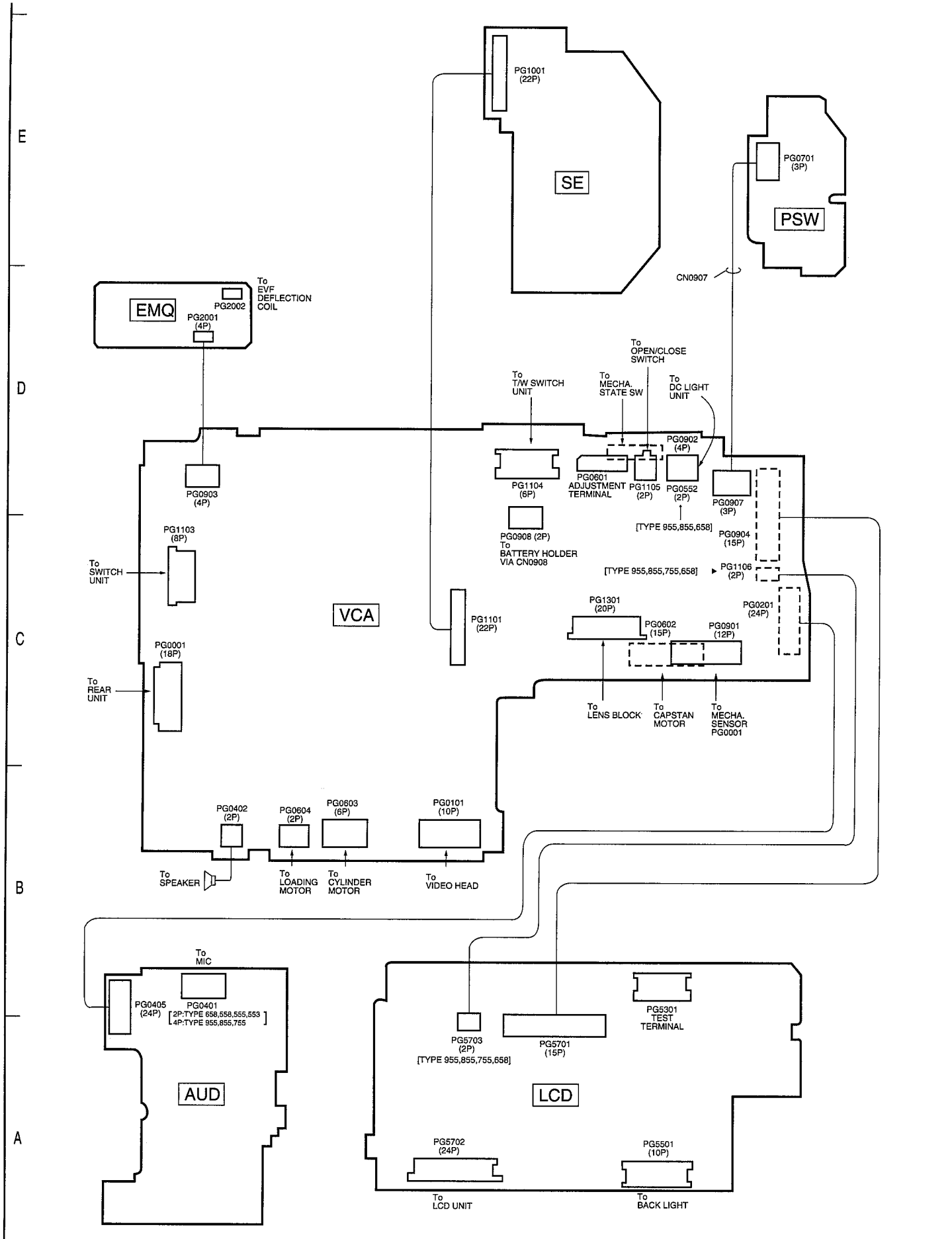
1) In case of one-layer board



2) In case of side A/B indication board



INTERNAL WIRING DIAGRAM



SENSOR/GYRO [SE] SCHEMATIC DIAGRAM

CODE	PART NAME
QC	2SC2620
5H	XP4501
64	DTC114YE

NOTE:VOLTAGES ARE MEASURED WHEN CAMERA IS POINTED AT THE COLOR BAR CHART

○— · WAVEFORMS No

[EXCEPT FOR TYPE 558,553]

V-MOVE
IC1401
ENC-03JA -03

H-MOVE
IC1402
ENC-03JB -03

IC1001
ICX207AK-K / ICX211AK-L
CCD SENSOR

IC1403
NJM064V
GYRO AMP

Q1001
- QC

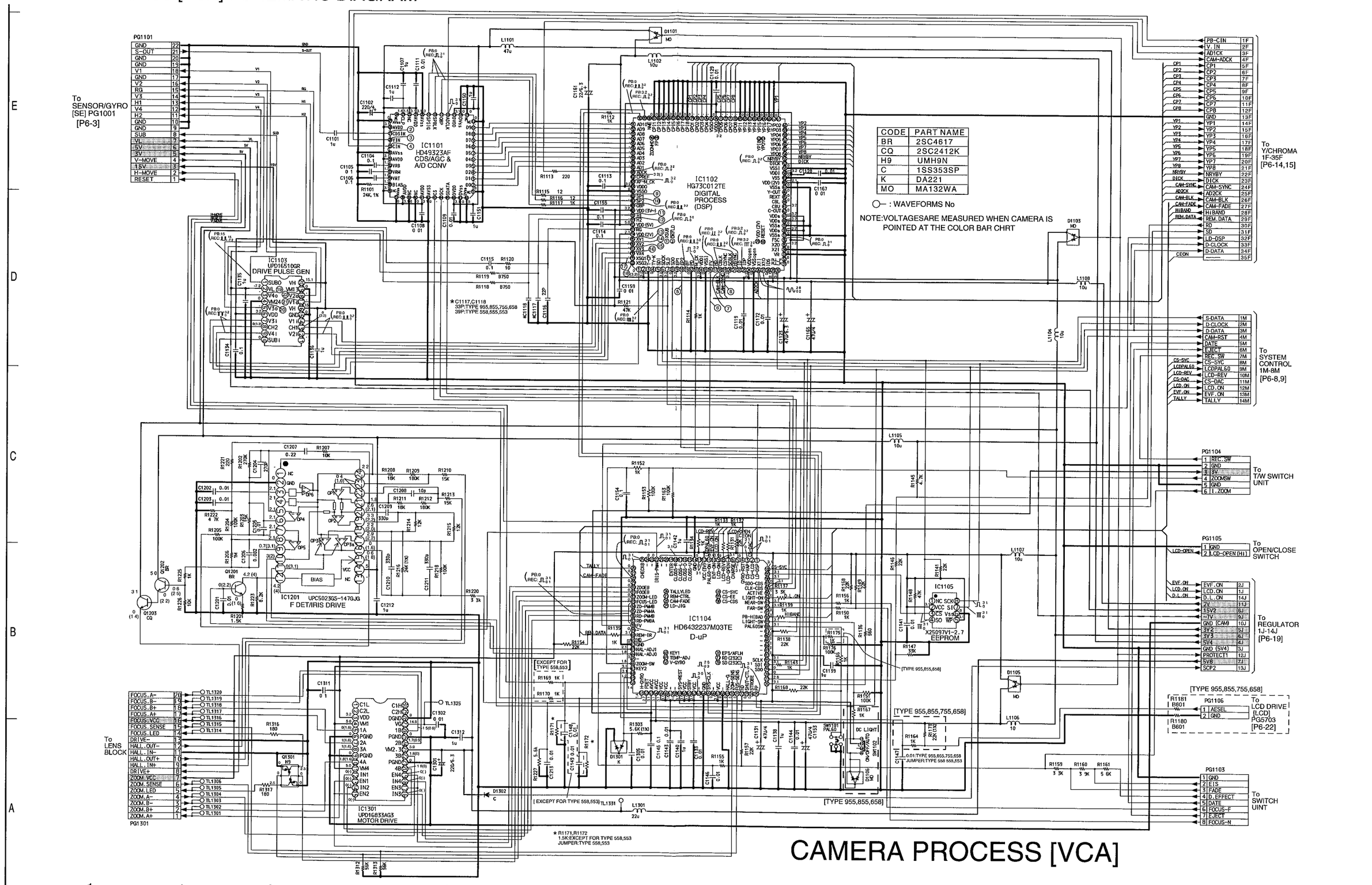
Q1002
5H

Q1401
64

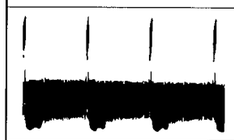
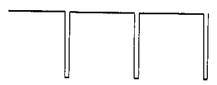
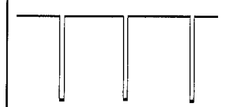
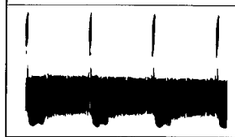
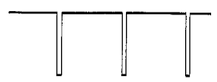
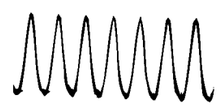
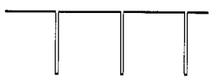
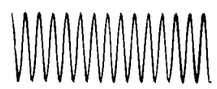
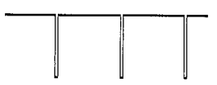
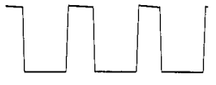
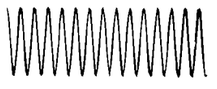
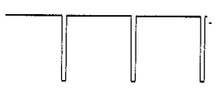
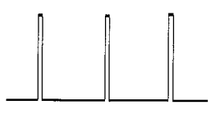
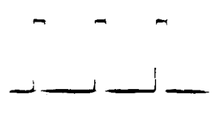
D1002
1SS353

R1001 6.8K
R1002 100
R1003 1M
R1004 1M
R1005 1M
R1006 100K
R1007 1M
R1008 1M
R1009 22
R1010 0.01
R1011 1u
R1012 1u
R1013 1u
R1014 1u
R1015 1u
R1016 1u
R1017 1u
R1018 1u
R1019 1u
R1020 1u
R1021 1u
R1022 1u
R1023 1u
R1024 1u
R1025 1u
R1026 1u
R1027 1u
R1028 1u
R1029 1u
R1030 1u

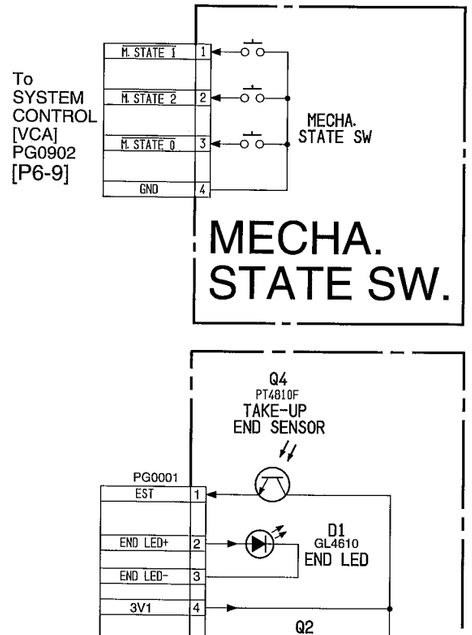
CAMERA PROCESS [VCA] SCHEMATIC DIAGRAM



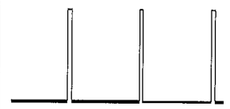
CAMERA WAVEFORMS

1-A IC1001-7 1 1Vp-p 0 2V/20 0µsec.cm COLOR CHART	8-A IC1102-19 3 0Vp-p 1V/20 0µsec.cm COLOR CHART	15-A IC1102-117 3.1Vp-p 1V/20.0µsec cm COLOR CHART	22-A IC1103-18 7.3Vp-p 2V/20.0µsec.cm COLOR CHART
			
2-A IC1101-27 1 1Vp-p 0 2V/20 0µsec.cm COLOR CHART	9-A IC1102-106 4 2Vp-p 1V/50 0nsec.cm COLOR CHART	16-A IC1102-118 3 1Vp-p 1V/20.0µsec cm COLOR CHART	
			
3-A IC1101-28 500mVp-p 0.1V/20.0µsec cm VIDEO IN	10-A IC1102-107 4 2Vp-p 1V/50 0nsec.cm COLOR CHART	17-A IC1102-119 3.1Vp-p 1V/5 0msec cm COLOR CHART	
			
4-B IC1101-29 360mVp-p 0 1V/20.0µsec cm PLAY	11-A IC1102-110 7.0Vp-p 2V/100nsec cm COLOR CHART	18-A IC1102-120 3 1Vp-p 1V/5.0msec.cm COLOR CHART	
			
5-A IC1102-10 3.0Vp-p 1V/5 0msec cm COLOR CHART	12-A IC1102-111 7 0Vp-p 2V/100nsec cm COLOR CHART	19-A IC1103-3 7.3Vp-p 2V/20 0µsec.cm COLOR CHART	
			
6-A IC1102-16 3 0Vp-p 1V/5 0msec cm COLOR CHART	13-A IC1102-115 3 1Vp-p 1V/20 0µsec cm COLOR CHART	20-A IC1103-5 7 3Vp-p 2V/20.0µsec cm COLOR CHART	
			
7-A IC1102-18 3 1Vp-p 1V/20 0µsec cm REC	14-A IC1102-116 3 1Vp-p 1V/20.0µsec cm COLOR CHART	21-A IC1103-17 7 3Vp-p 2V/20 0µsec.cm COLOR CHART	
			

MECHA.STATE SW/MECHA.SENSOR SCHEMATIC DIAGRAM



SYSTEM CONTROL WAVEFORMS

1-A IC901-41 2.8Vp-p 1V/100nsec.cm REC/PLAY
2-A IC901-64 3 2Vp-p 1V/20.0µsec cm REC/PLAY

3-A IC901-68 3.2Vp-p 1V/500µsec.cm REC/PLAY
4-A IC901-85 3.4Vp-p 1V/20.0µsec.cm REC/PLAY

SYSTEM CONTROL [VCA] SCHEMATIC DIAGRAM

CODE	PART NAME
BR	2SC4617
★BR	2SC2412K
FR	2SA1774RS
64	DTC114YE
C	1SS353SP
J	SB07-03C
MO	MA132WA

NOTE:ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
○— : WAVEFORMS No

IC0901
CXP87248A-153R
SYSTEM CONTROL(S-uP)

IC0902
MJU7284EV(TE1)
BACK-UP DET

IC0903
GP1U101X
IR RECEIVE

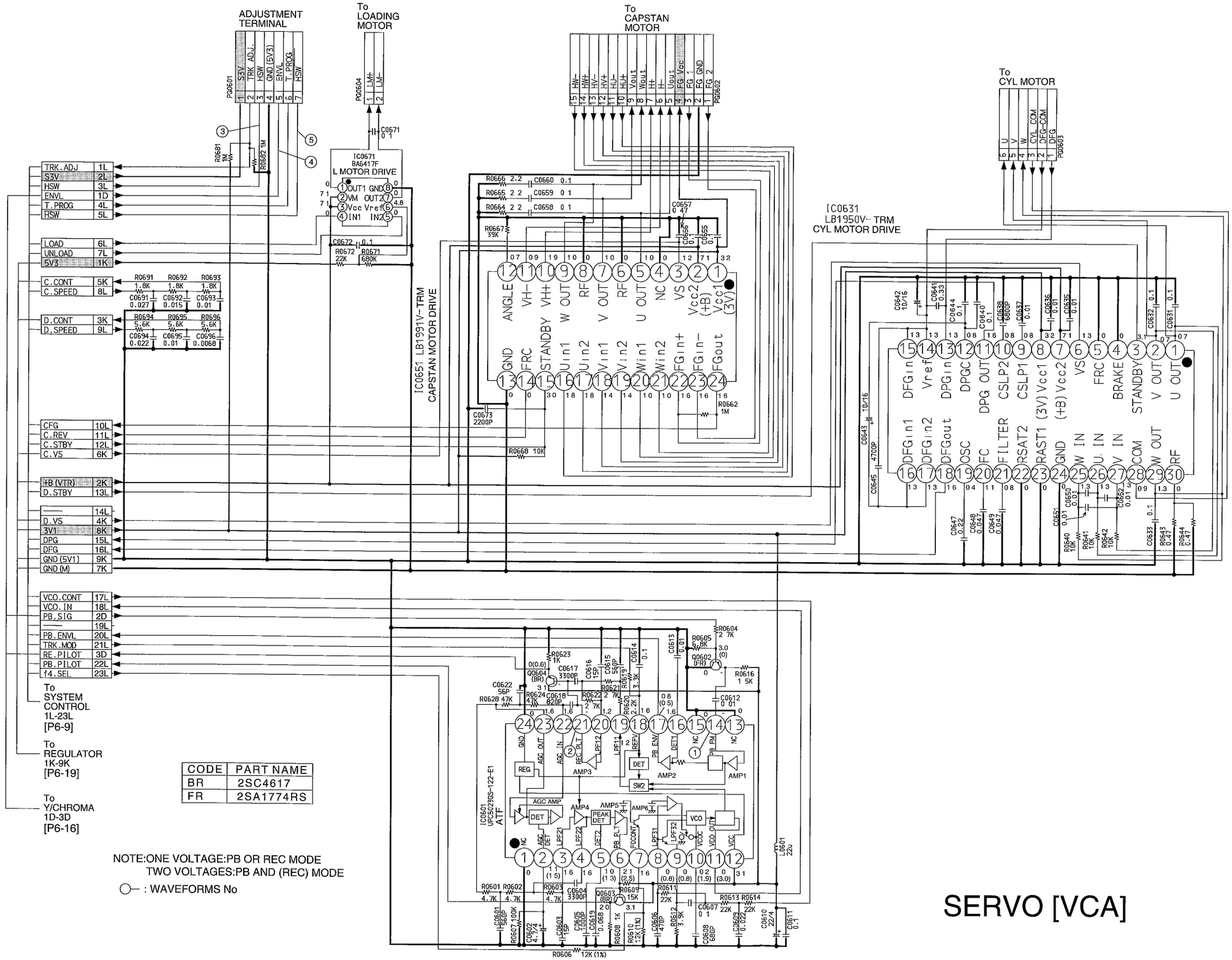
IC0904
UPD6461GS 942-E1-[TYPE 955,855,755,555,553]
UPD6461GS 941 E1-[TYPE 658,558]
CHARA GEN

IC0906
SN74AHCT126PW
LEVEL SHIFT

To LCD DRIVE (LCD) PG5701 [P6-22]
To ELECTRONIC VIEWFINDER [EMQ] PG2001 [P6-25]
To REGULATOR 1H-14H [P6-19]
To CHARGE 1C-11C [P6-17]
To Y/CHROMA 1E-35E [P6-14,15]
To CAMERA PROCESS 9M,10M [P6-5]
To POWER SWITCH [PSW] PG0701 [P6-18]
To SERVO 1L-23L [P6-10]
To MECHA. STATE SW [P6-7]
To MECHA. SENSOR PG0001 [P6-7]
To CAMERA PROCESS 1M-8M,11M-14M [P6-5]
To BATTERY HOLDER

SYSTEM CONTROL [VCA]

SERVO [VCA] SCHEMATIC DIAGRAM

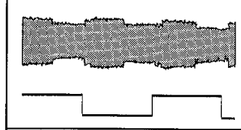


CODE	PART NAME
BR	2SC4617
FR	2SA1774RS

NOTE:ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
○— : WAVEFORMS No

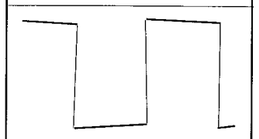
SERVO WAVEFORMS

1-B IC601-14 200mVp-p
0 1V/5 0msec cm
PLAY



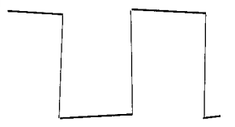
2-A IC601-21 560mVp-p
0.2V/5.0msec.cm
REC

3-A PG601-3 3.3Vp-p
1V/5 0msec.cm
REC/PLAY



4-B PG601-5 150mVp-p
0 1V/5 0msec cm
PLAY

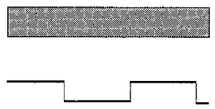
5-A PG601-7 2 4Vp-p
0 5V/5 0msec.cm
REC/PLAY



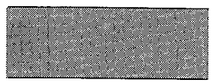
SERVO [VCA]

VIDEO WAVEFOMS

1-B IC101-22 300mVp-p 0.2V/5.0msec cm PLAY

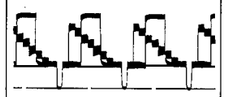


8-A IC102-23 670mVp-p 0 1V/20 0µsec cm REC



14-A IC201-39 3 1Vp-p 1V/20.0µsec cm REC/PLAY

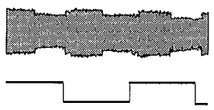
20-A IC201-86 730mVp-p 0.2V/20.0µsec.cm REC/PLAY



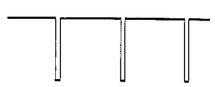
27-A IC201-120 3 1Vp-p 1V/5 0msec.cm REC/PLAY

34-A PG202-9 300mVp-p 0.2V/20 0µsec.cm REC

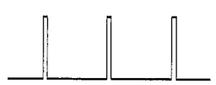
2-B IC101-27 200mVp-p 0 1V/5 0msec cm PLAY



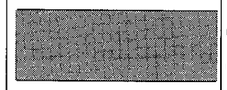
9-A IC201-1 3 1Vp-p 1V/20.0µsec.cm REC



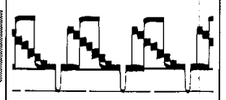
15-A IC201-40 1.7Vp-p 0 5V/20 0µsec cm REC/PLAY



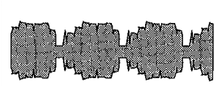
21-A IC201-90 730mVp-p 0 2V/20 0µsec.cm REC



28-A IC204-3 1.8Vp-p 0 5V/20.0µsec.cm REC/PLAY

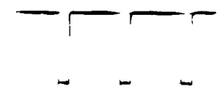


34-B PG202-9 300mVp-p 0.2V/20 0µsec cm PLAY

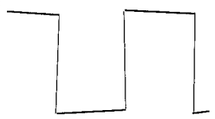


3-A IC102-6 380mVp-p 0 1V/20 0µsec.cm REC

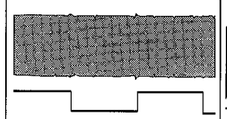
9-B IC201-1 3 1Vp-p 1V/20 0µsec cm REC



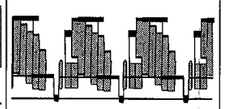
16-A IC201-42 3.1Vp-p 1V/5.0msec cm REC/PLAY



22-B IC201-94 850mVp-p 0.5V/5.0msec.cm PLAY

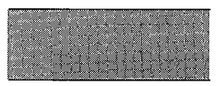


29-A IC204-4 1 8Vp-p 0.5V/20.0µsec cm REC/PLAY

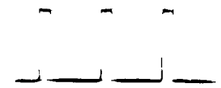


35-A PG202-10 710mVp-p 0 2V/20 0µsec cm REC/PLAY

4-A IC102-11 450mVp-p 0.2V/20 0µsec.cm REC



10-A IC201-28 3 1Vp-p 1V/20.0µsec cm REC

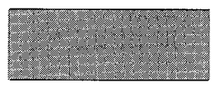


17-A IC201-43 3 1Vp-p 1V/20 0msec.cm REC/PLAY

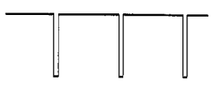
23-A IC201-103 3 1Vp-p 1V5 0msec.cm REC/PLAY

30-A IC204-7 1 1Vp-p 0 5V/20 0µsec cm REC/PLAY

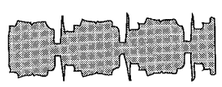
5-A IC102-15 500mVp-p 0.2V/20 0µsec cm REC



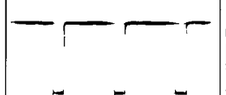
11-A IC201-29 3.1Vp-p 1V/20 0µsec cm REC



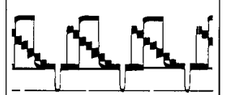
18-A IC201-77 720mVp-p 0.2V/20 0µsec.cm REC



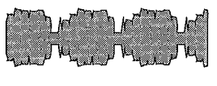
24-A IC201-104 3.1Vp-p 1V/20.0µsec cm REC/PLAY



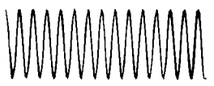
31-A IC204-8 930mVp-p 0.2V/20.0µsec cm REC/PLAY



6-B IC102-21 360mVp-p 0.1V/20.0µsec cm PLAY

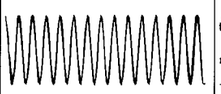


12-A IC201-32 1.0Vp-p 0 5V/50.0nsec cm REC

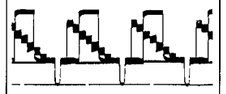


19-A IC201-82 670mVp-p 0.2V/20.0µsec cm REC

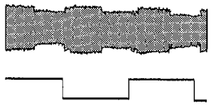
25-A IC201-116 2.7Vp-p 1V/100nsec cm COLOR CHART



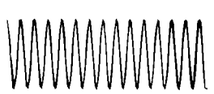
32-A IC204-9 480mVp-p 0 1V/20 0µsec.cm REC/PLAY



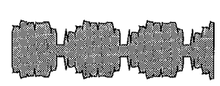
7-B IC102-22 340mVp-p 0 2V/5.0msec.cm PLAY



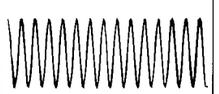
13-A IC201-36 800mVp-p 0 2V/50 0nsec cm REC



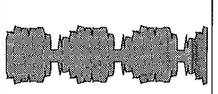
19-B IC201-82 860mVp-p 0 2V/20.0µsec.cm PLAY



26-A IC201-117 2.7Vp-p 1V/100nsec.cm COLOR CHART



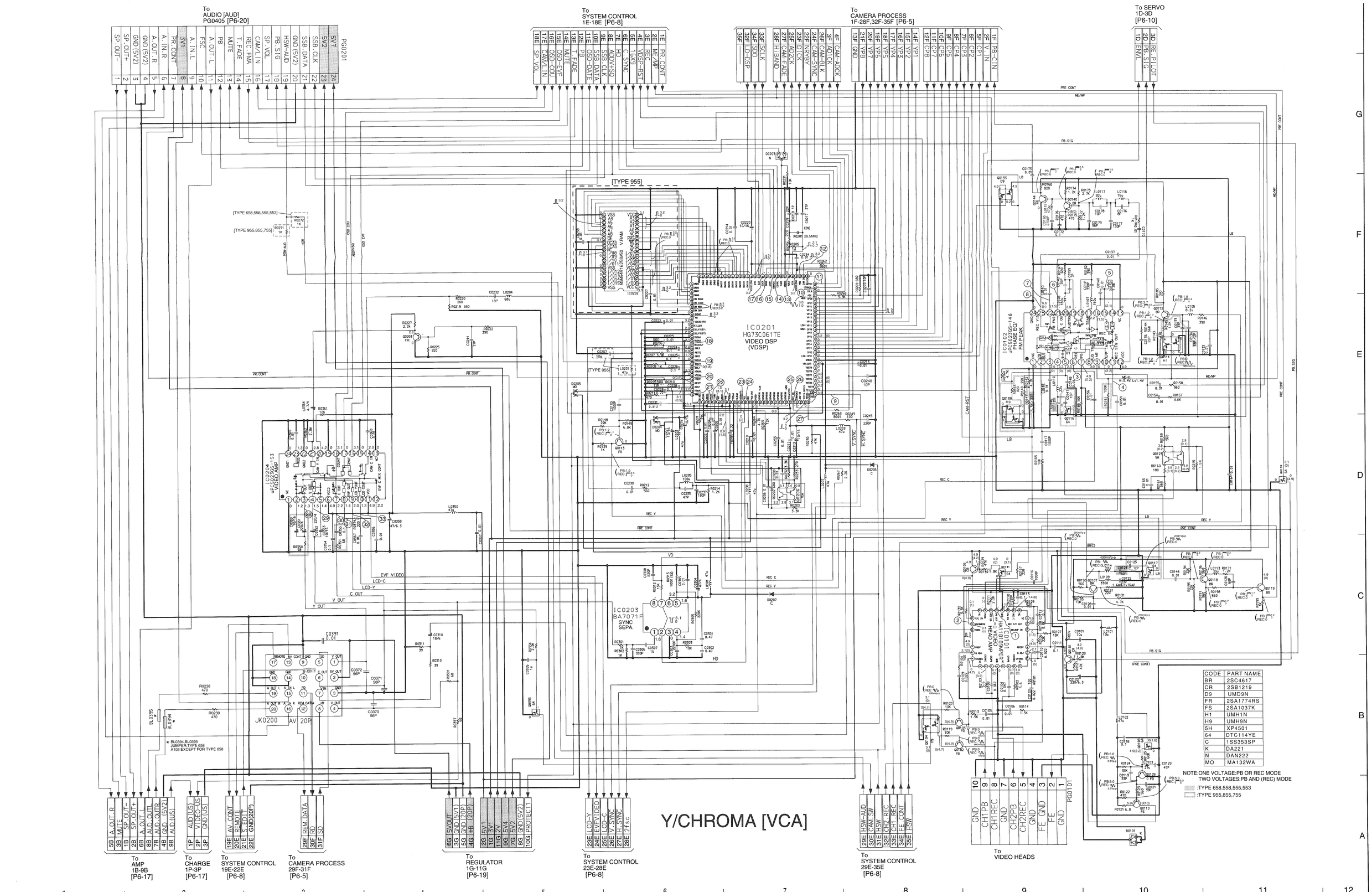
33-A IC201-10 280mVp-p 0.1V/20 0µsec.cm REC/PLAY



E D C B A

1 2 3 4 5 6 7 8

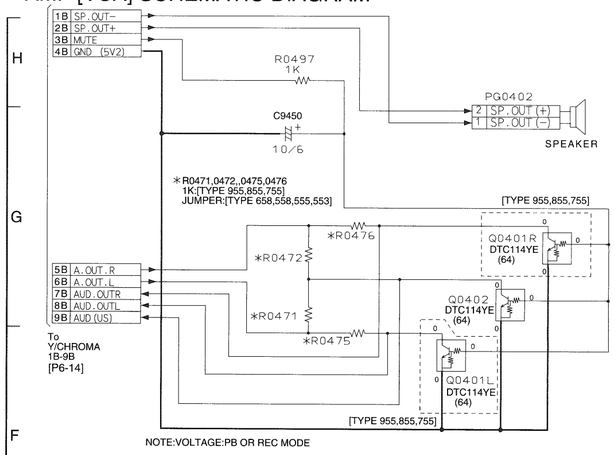
Y/CHROMA [VCA] SCHEMATIC DIAGRAM



CODE	PART NAME
BR	2SC4617
CR	2SB1219
D9	UMD9N
FR	2SA1774RS
FS	2SA1037K
H1	UMH1N
H9	UMH9N
5H	XP4501
64	DTC114YE
C	1SS353SP
K	DA221
N	DAN222
MO	MA132WA

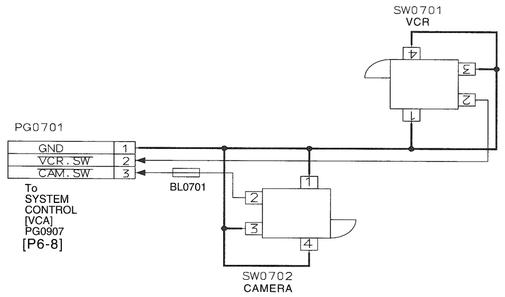
NOTE:ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
:TYPE 658,558,555,553
:TYPE 955,855,755

AMP [VCA] SCHEMATIC DIAGRAM



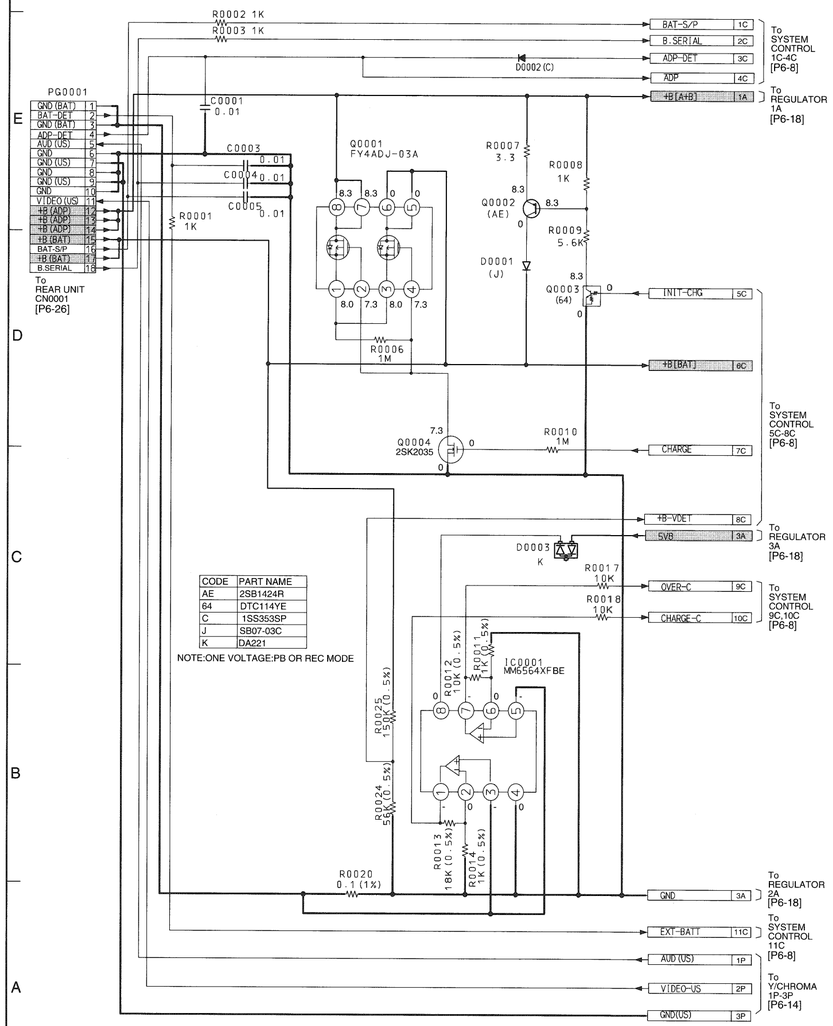
AMP [VCA]

POWER SWITCH [PSW] SCHEMATIC DIAGRAM



POWER SWITCH [PSW]

CHARGE [VCA] SCHEMATIC DIAGRAM

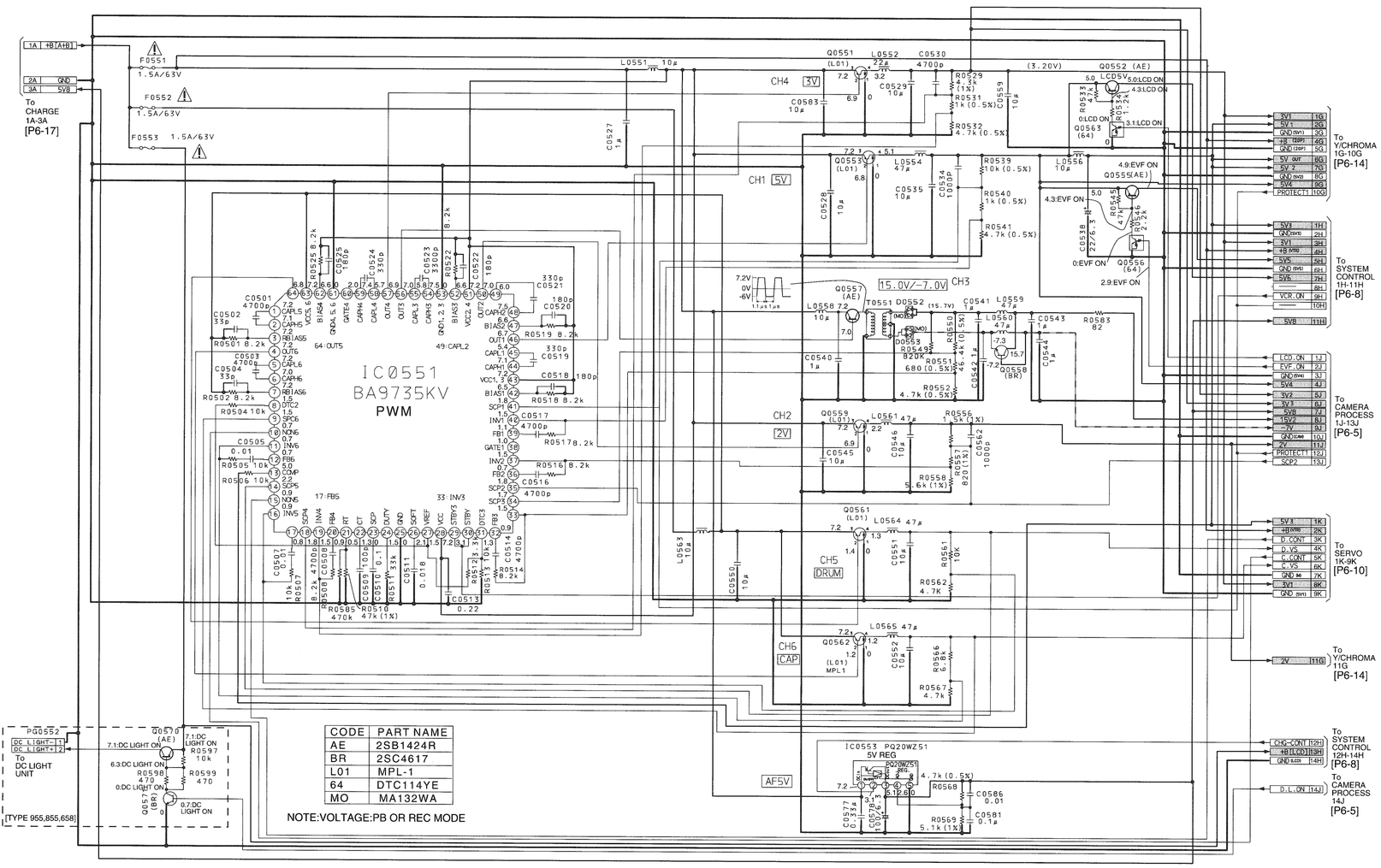


CODE	PART NAME
AE	2SB1424R
64	DTC114YE
C	1SS353SP
J	SB07-03C
K	DA221

NOTE:ONE VOLTAGE:PB OR REC MODE

CHARGE [VCA]

REGULATOR [VCA] SCHEMATIC DIAGRAM



CODE	PART NAME
AE	2SB1424R
BR	2SC4617
L01	MPL-1
64	DTC114YE
MO	MA132WA

NOTE:VOLTAGE:PB OR REC MODE

REGULATOR [VCA]

AUDIO [AUD] SCHEMATIC DIAGRAM

CODE	PART NAME
BR	2SC4617
CR	2SB1219
FR	2SA1774
64	DTC114YE
56M	MA8056-M
75H	MA8075-H

:TYPE 955,855,755

:TYPE 658,558,555,553

NOTE:ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
*:SEE IC BLOCK DIAGRAM

PG0405

SP.OUT-	1
SP.OUT+	2
GND (5V2)	3
GND (5V2)	4
A.OUT.R	5
A.IN.R	6
PR.CONT	7
3V1	8
A.IN.L	9
FSC	10
A.OUT.L	11
PB	12
MUTE	13
T.FADE	14
REC.FMA	15
CAM /LINE	16
SP.VOL	17
PB.SIG	18
HSW-AUD	19
GND (5V2)	20
SSB.DATA	21
SSB.CLK	22
5V2	23
5V7	24

To
Y/CHROMA
[VCA]
PG0201
[P6-14]

*IC0401
HA118193F
LA7458W(*)
AUDIO PROCESS

IC0402S
TDA7052AT
SP AMP

IC0403S
NJM2112V-TE1

PG0401

4	MIC IN(R)
3	GND (R)
2	MIC IN(L)
1	GND (L)

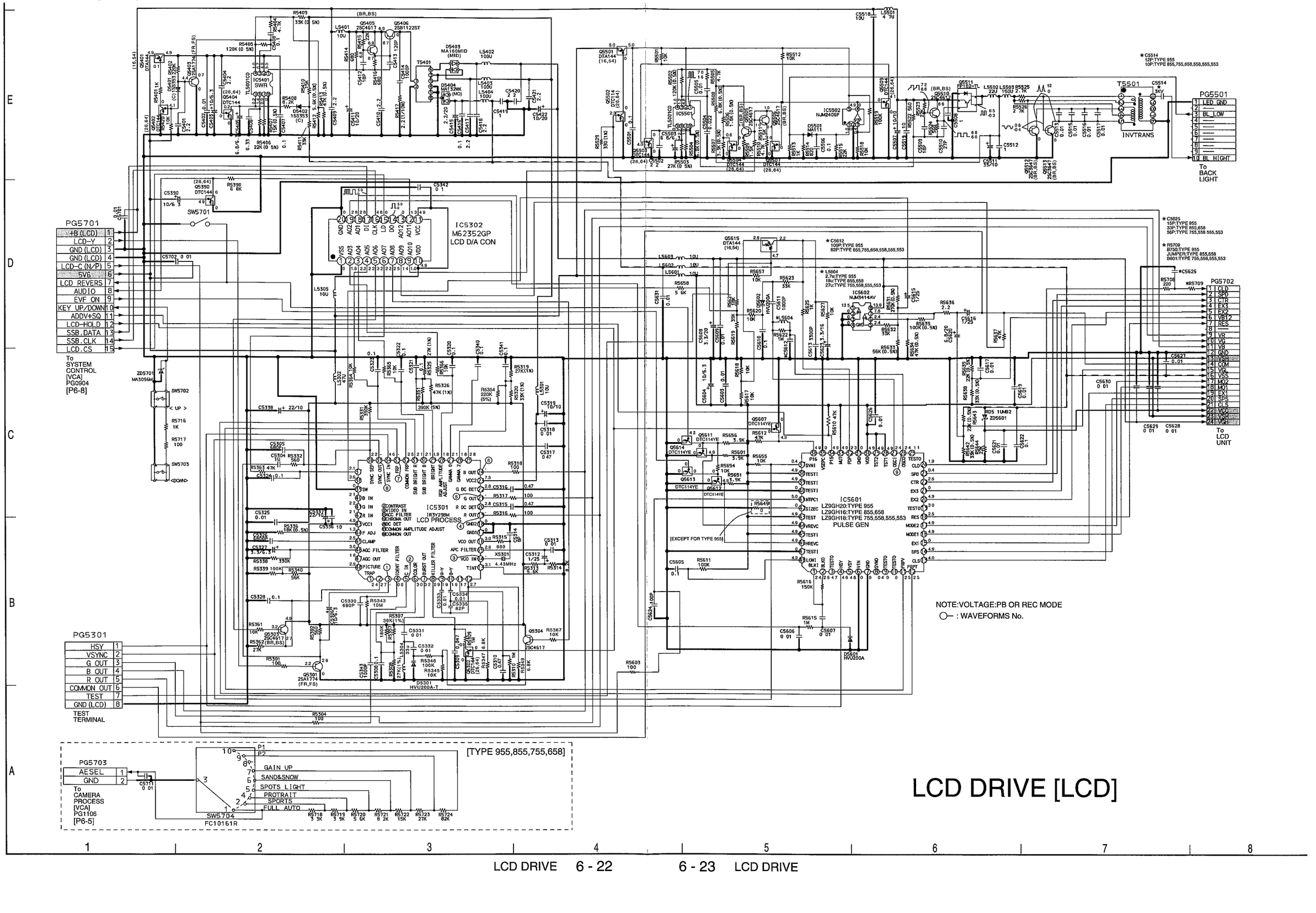
To
MIC UNIT

Rch

Lch

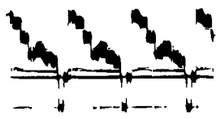
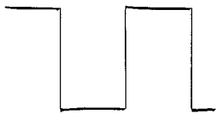
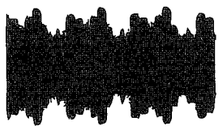
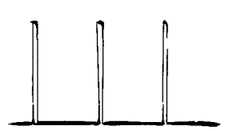
AUDIO [AUD]

LCD DRIVE [LCD] SCHEMATIC DIAGRAM

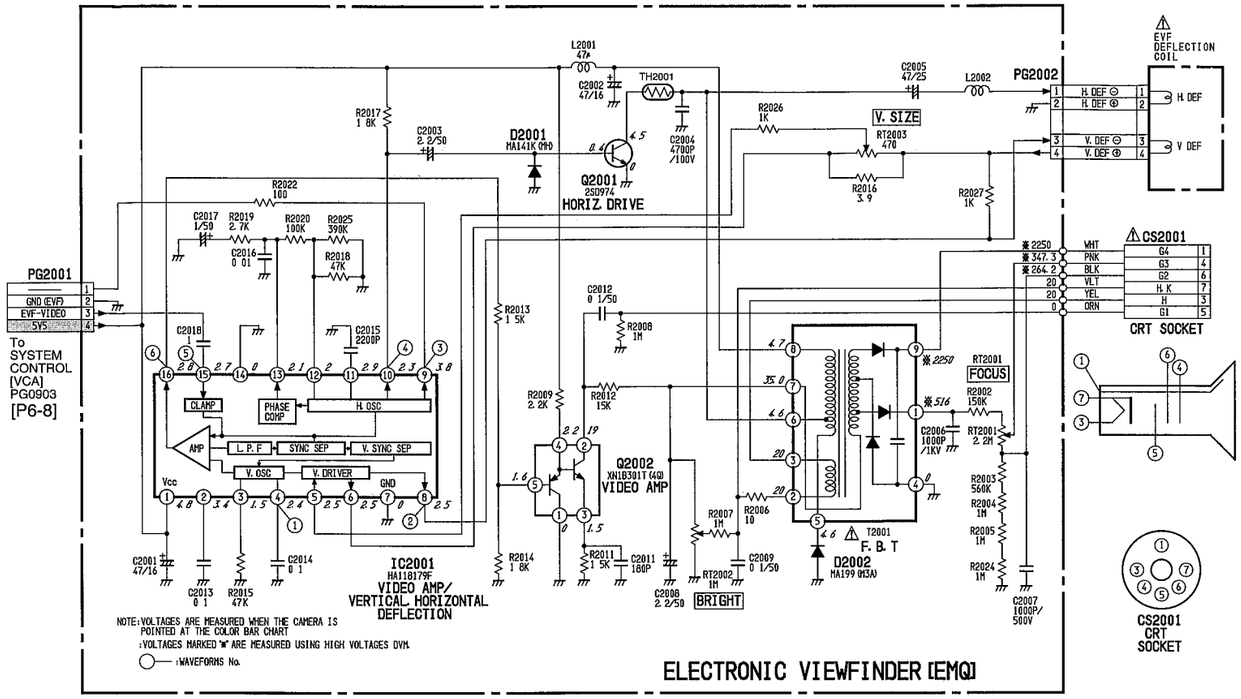


LCD DRIVE [LCD]

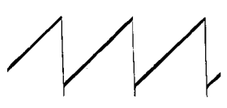
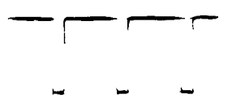
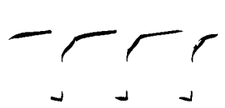
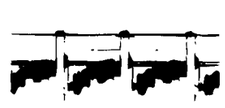
LCD WAVEFORMS

1-A IC5301-3 510mVp-p 0.1V/20.0µsec.cm COLOR CHART	6-A IC5301-24 5.4Vp-p 1V/20.0µsec.cm COLOR CHART
	
1-B IC5301-3 500mVp-p 0.1V/20.0µsec.cm VIDEO IN	7-A IC5301-33 4.8Vp-p 1V/20.0µsec.cm COLOR CHART
	
2-A IC5301-5 300mVp-p 0.1V/20.0µsec.cm COLOR CHART	8-A IC5301-35 4.7Vp-p 1V/20.0µsec.cm COLOR CHART
	
3-A IC5301-14 450mVp-p 0.1V/200nsec.cm COLOR CHART	9-A IC5601-26 5.3Vp-p 1V/20.0µsec.cm COLOR CHART
4-A IC5301-19 5.4Vp-p 1V/20.0µsec.cm COLOR CHART	
5-A IC5301-21 5.4Vp-p 1V/20.0µsec.cm COLOR CHART	

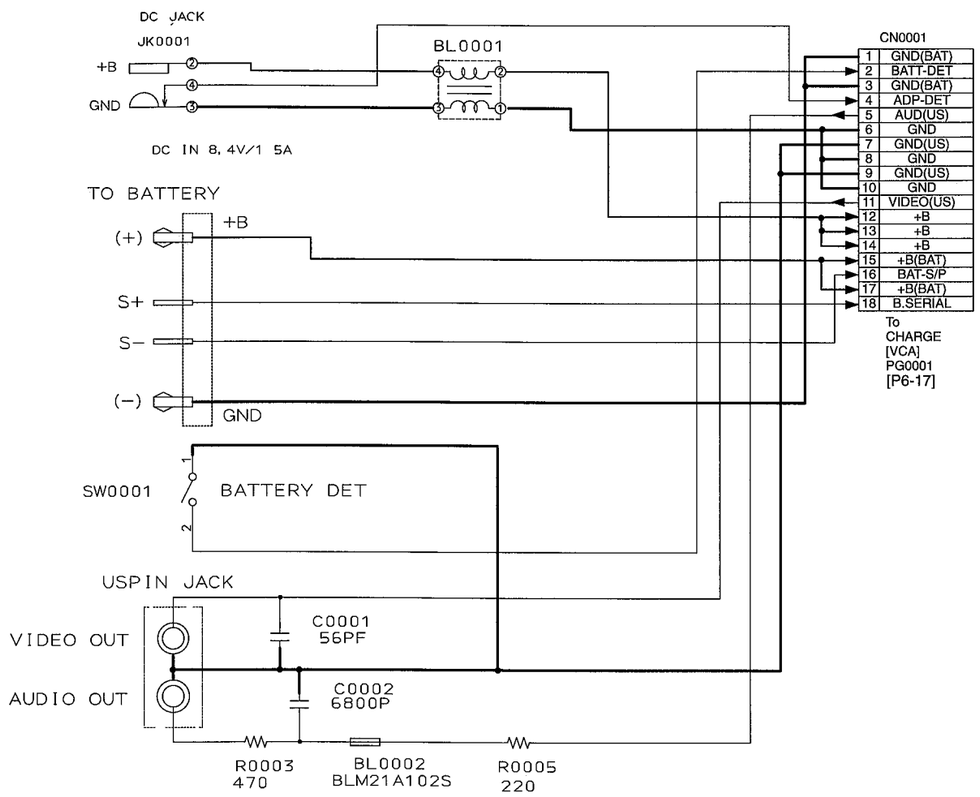
ELECTRONIC VIEWFINDER [EMQ] SCHEMATIC DIAGRAM



ELECTRONIC VIEWFINDER WAVEFORMS

1-A IC2001-4 870mVp-p 0.2V/5.0msec.cm COLOR CHART	2-A IC2001-8 2.2Vp-p 0.5V/5.0msec.cm COLOR CHART	3-A IC2001-9 1.9Vp-p 0.5V/20.0µsec.cm COLOR CHART
		
4-A IC2001-10 1.7Vp-p 0.5V/20.0µsec.cm COLOR CHART	5-A IC2001-15 1.0Vp-p 0.2V/20.0µsec.cm COLOR CHART	6-A IC2001-16 2.9Vp-p 1V/20.0µsec.cm COLOR CHART
		

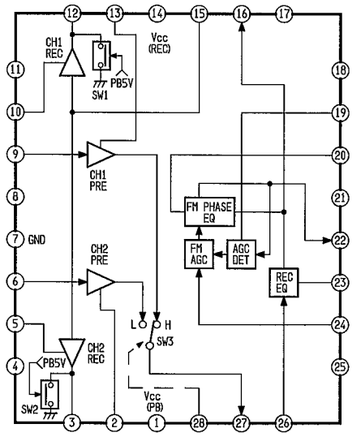
REAR UNIT SCHEMATIC DIAGRAM



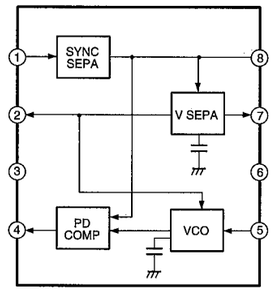
REAR UNIT

IC BLOCK DIAGRAMS

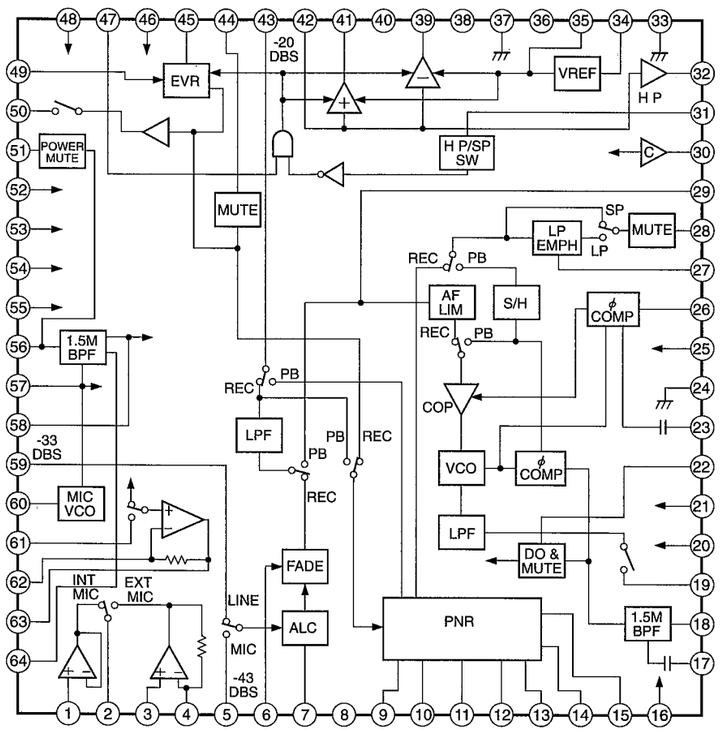
IC0101
HA118189MPER
VIDEO HEAD AMP



IC0203
BA7071F
SYNC SEPA

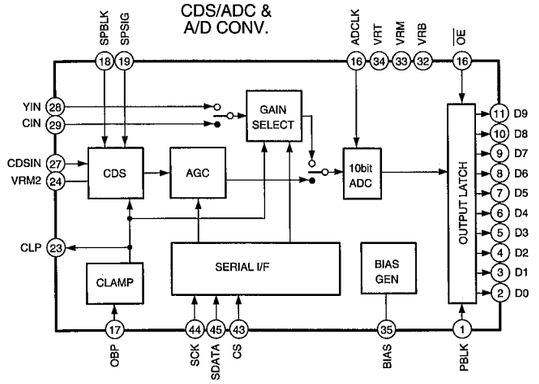


IC0401
LA7458W
MONAURAL
AUDIO PROCESS

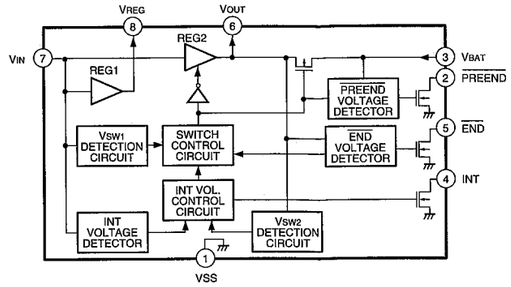


IC BLOCK DIAGRAMS

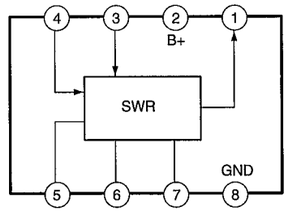
IC1101
HD49323AF
CDS/ADC &
A/D CONV.



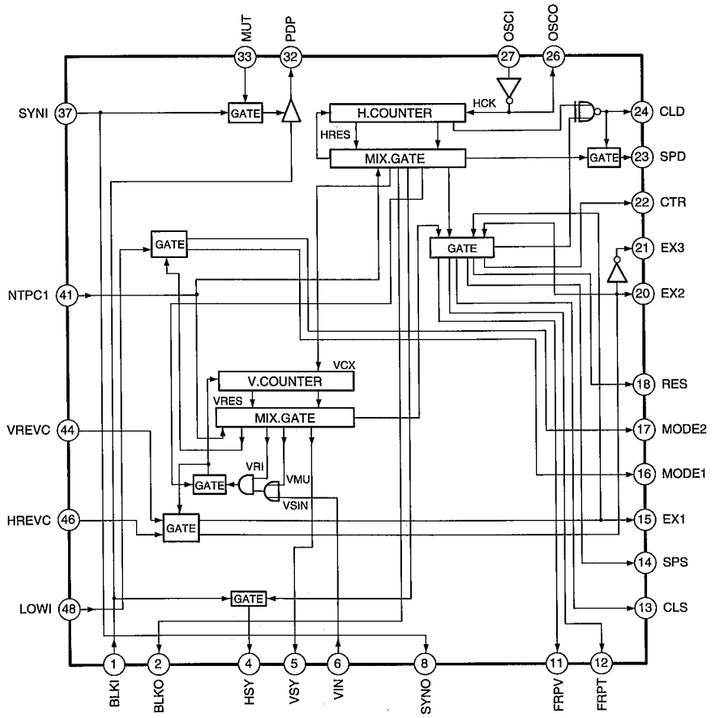
IC0902
NJU7284EV
BACK-UP DET



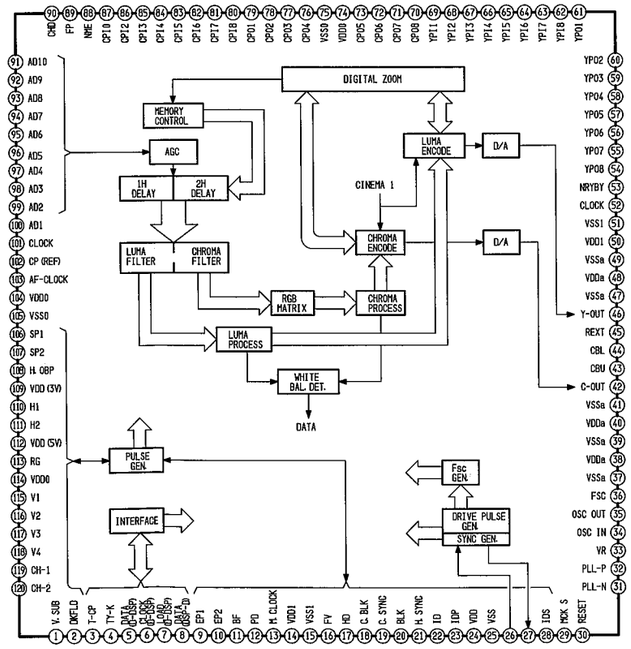
IC5401/5501
TL5001CD
SWR



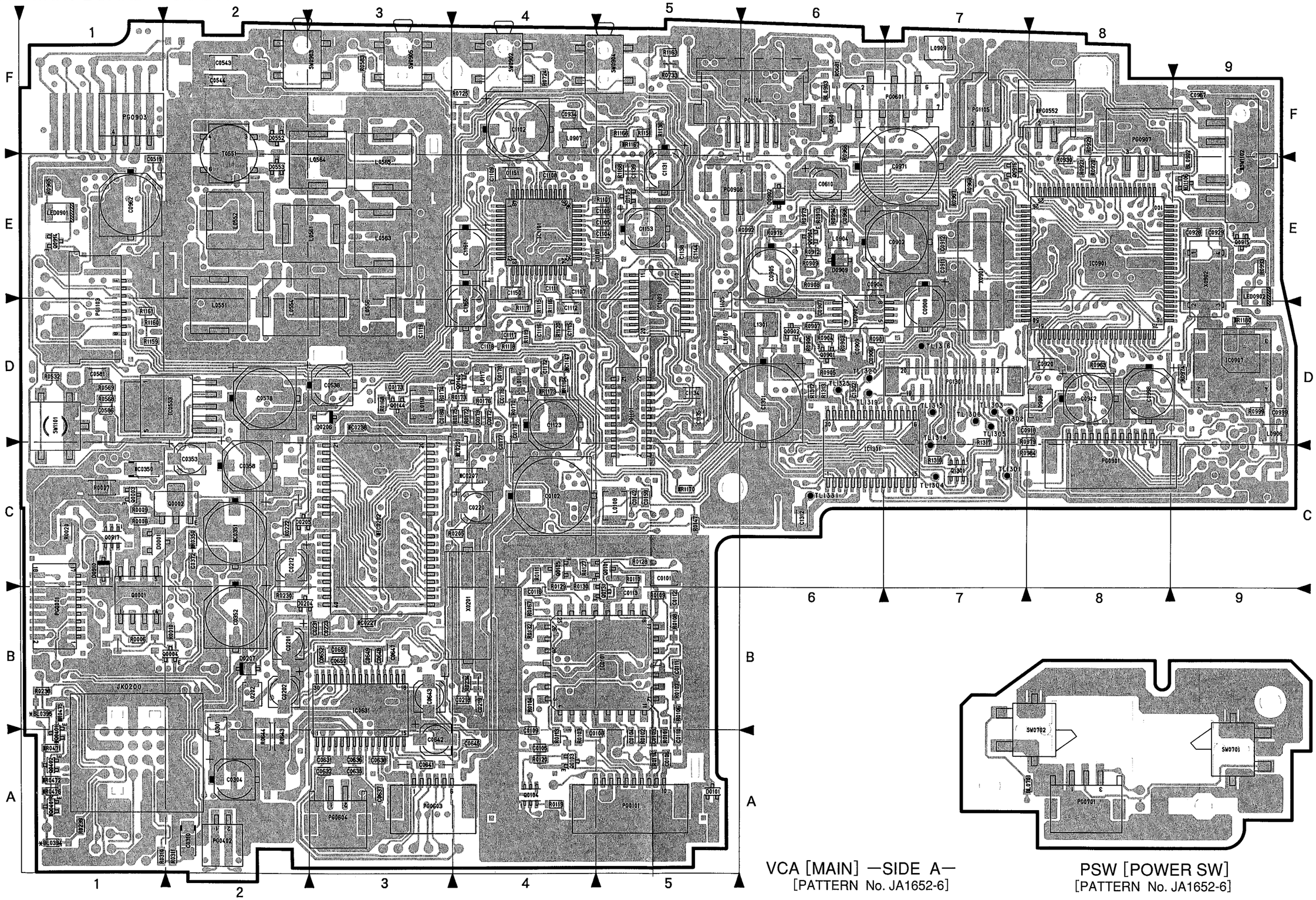
IC5601
LZ9GH20/18/16
LCD MODULE
TIMING CONT.



IC1102
HG73C012TE
DIGITAL
CAMERA PROCESS(DSP)



VCA CIRCUIT BOARD – SIDE A –



VCA [MAIN] –SIDE A–
[PATTERN No. JA1652-6]

PSW [POWER SW]
[PATTERN No. JA1652-6]

DIFFERENCE TABLE

VCA [MAIN] -SIDE A-

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

SYMBOL No.	TYPE 955	TYPE 855	TYPE 755	TYPE 658	TYPE 558	TYPE 555	TYPE 553
BL0394	○	○	○	JUMPER	○	○	○
BL0395	○	○	○	JUMPER	○	○	○
C0207	○	×	×	×	×	×	×
C0227	○	×	×	×	×	×	×
C0238	○	×	×	×	×	×	×
C0350	○	○	○	×	×	×	×
C0351	○	○	○	×	×	×	×
C1147	○	○	○	○	JUMPER	JUMPER	JUMPER
D1106	○	○	×	○	×	×	×
IC0202	○	×	×	×	×	×	×
L0201	○	×	×	×	×	×	×
PG0552	○	○	×	○	×	×	×
Q0401L	○	○	○	×	×	×	×
Q0401R	○	○	○	×	×	×	×
R0350	○	○	○	×	×	×	×
R0471	○	○	○	JUMPER	JUMPER	JUMPER	JUMPER
R0472	○	○	○	JUMPER	JUMPER	JUMPER	JUMPER
R0475	○	○	○	JUMPER	JUMPER	JUMPER	JUMPER
R0476	○	○	○	JUMPER	JUMPER	JUMPER	JUMPER
R1164	○	○	○	○	×	×	×
R1167	○	○	×	○	×	×	×
R1170	○	○	○	○	×	○	×
R1173	○	○	○	○	×	×	×
R1180	○	○	○	○	×	×	×
SW1102	○	○	×	○	×	×	×

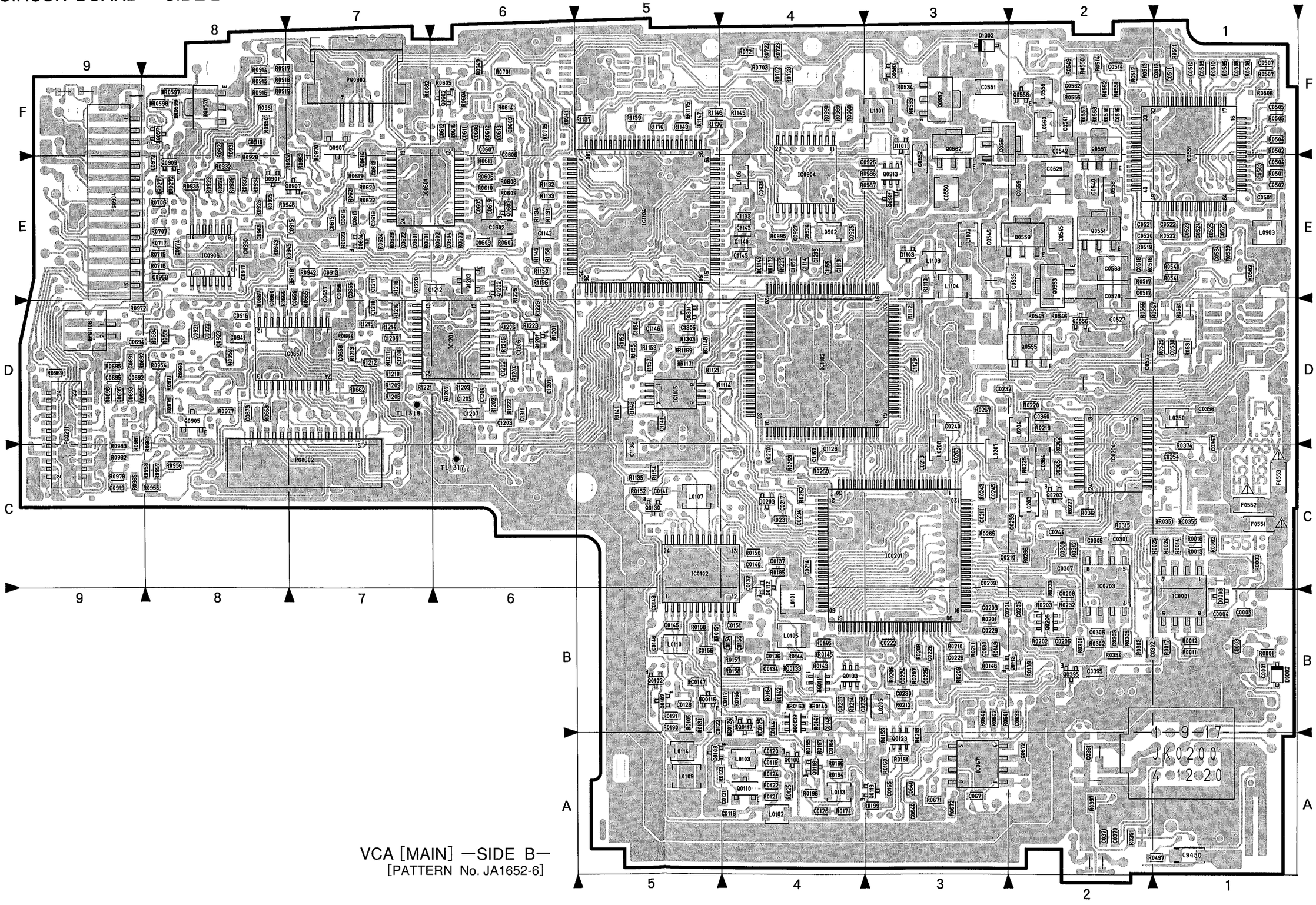
DIFFERENCE TABLE

VCA [MAIN] -SIDE B-

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

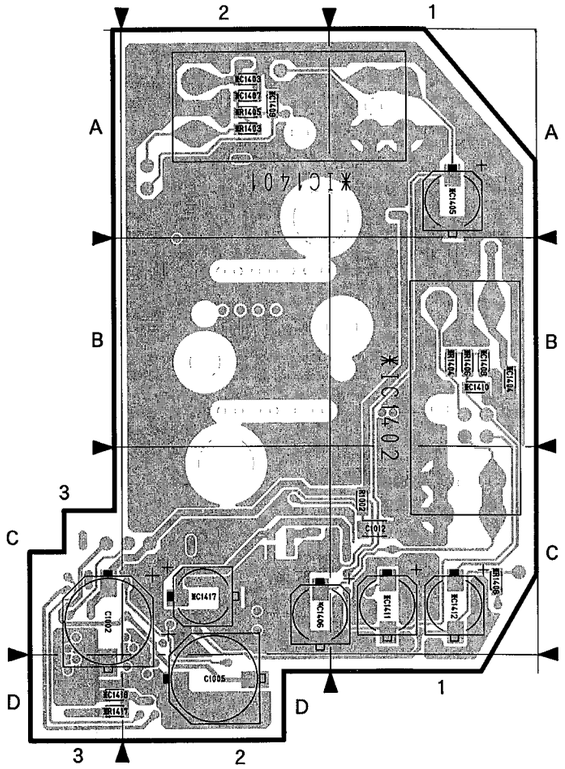
SYMBOL No.	TYPE 955	TYPE 855	TYPE 755	TYPE 658	TYPE 558	TYPE 555	TYPE 553
C0124	×	×	×	○	○	○	○
C0125	○	○	○	×	×	×	×
C0133	○	○	○	×	×	×	×
C0147	○	○	○	×	×	×	×
C0355	○	○	○	×	×	×	×
C1148	○	○	○	○	×	○	×
C1149	○	○	○	○	×	○	×
PG1106	○	○	○	○	×	×	×
Q0111	○	○	○	×	×	×	×
Q0116	○	○	○	×	×	×	×
Q0117	○	○	○	×	×	×	×
Q0139	○	○	○	×	×	×	×
Q0570	○	○	×	○	×	×	×
Q0571	○	○	×	○	×	×	×
R0140	○	○	○	×	×	×	×
R0145	○	○	○	×	×	×	×
R0151	○	○	○	×	×	×	×
R0163	○	○	○	×	×	×	×
R0271	○	○	○	×	×	×	×
R0272	×	×	×	○	○	○	○
R0351	○	○	○	×	×	×	×
R0597	○	○	×	○	×	×	×
R0598	○	○	×	○	×	×	×
R0599	○	○	×	○	×	×	×
R1169	○	○	○	○	×	○	×
R1171	○	○	○	○	JUMPER	○	JUMPER
R1172	○	○	○	○	JUMPER	○	JUMPER
R1175	○	○	×	○	×	×	×
R1181	○	○	○	○	×	×	×

VCA CIRCUIT BOARD – SIDE B –

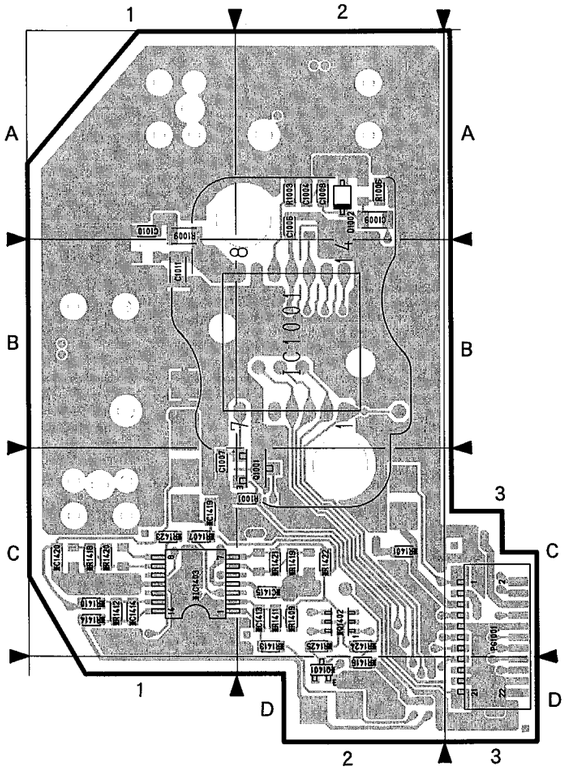


VCA [MAIN] —SIDE B—
[PATTERN No. JA1652-6]

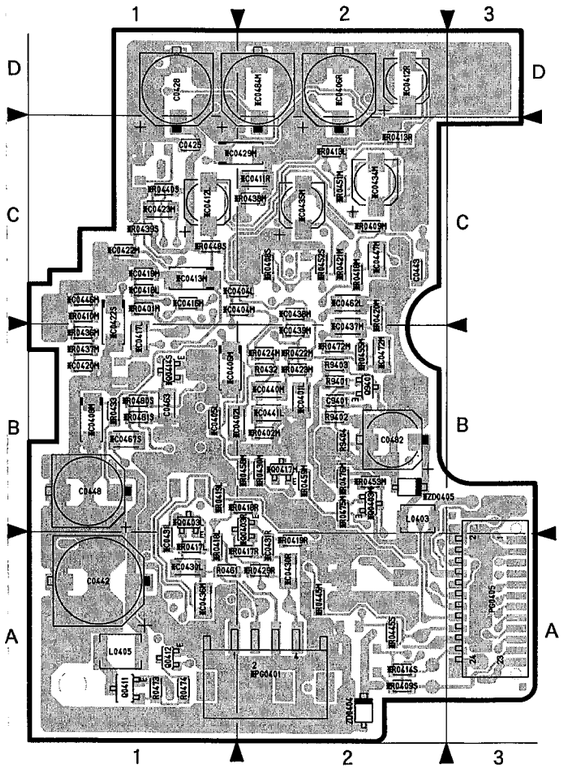
SE, AUD, EMQ CIRCUIT BOARD



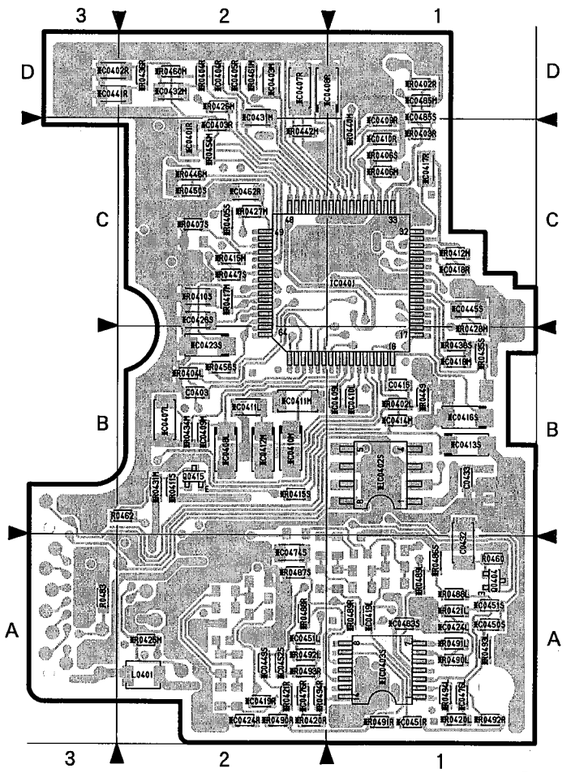
SE [SENSOR/GYRO]
—SIDE A—



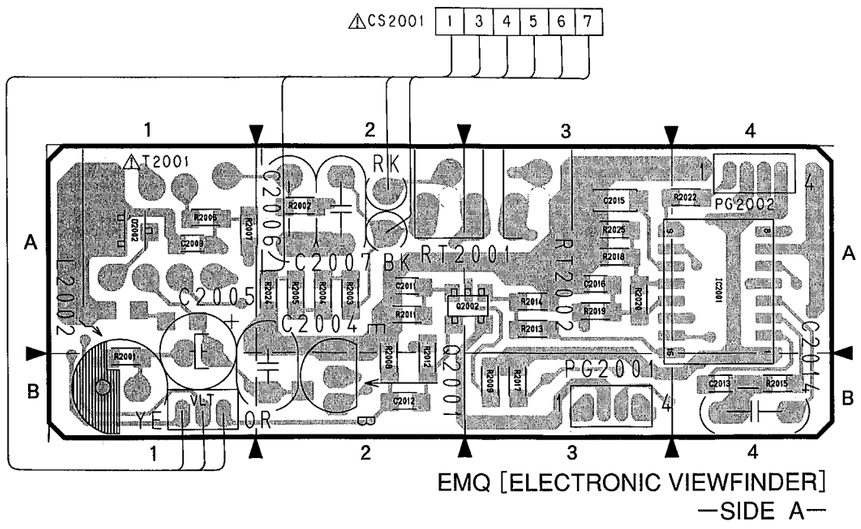
SE [SENSOR/GYRO]
—SIDE B—
[PATTERN No. JA1652-6]



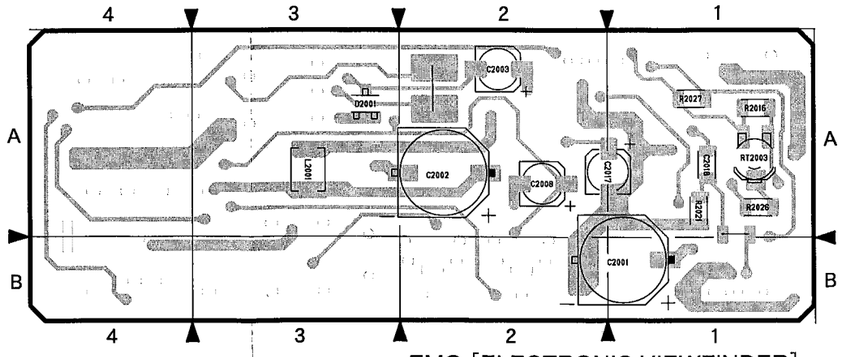
AUD [AUDIO]
—SIDE A—



AUD [AUDIO]
—SIDE B—
[PATTERN No. JA1652-6]



EMQ [ELECTRONIC VIEWFINDER]
—SIDE A—



EMQ [ELECTRONIC VIEWFINDER]
—SIDE B—
[PATTERN No. 152035-3]

DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

AUD [AUDIO] -SIDE A-

SYMBOL No.	TYPE 955/855/755	TYPE658/ 558/555/553
C0401L	○	×
C0402L	○	×
C0404L	○	×
C0404M	×	○
C0405L	○	×
C0406M	×	○
C0406R	○	×
C0408M	×	○
C0411R	○	×
C0412L	○	×
C0412R	○	×
C0413M	×	○
C0416M	×	○
C0417L	○	×
C0418L	○	×
C0419M	×	○
C0420M	×	○
C0422M	×	○
C0422S	○	×
C0423M	×	○
C0429M	×	○
C0430L	○	×
C0430R	○	×
C0431L	○	×
C0431R	○	×
C0434M	×	○
C0435M	×	○
C0436M	×	○
C0437M	×	○
C0438M	×	○
C0439M	×	○
C0440M	×	○
C0441L	○	×
C0446M	×	○
C0447M	×	○
C0462L	○	×
C0467S	○	×
C0472M	×	○
C0484M	×	○
PG0401	4P	2P
Q0403L	○	×
Q0403M	×	○
Q0403R	○	×
Q0414S	○	×
Q0417M	×	○
R0401M	×	JUMPER
R0402M	×	○
R0408S	○	×
R0409M	×	JUMPER
R0409S	○	×
R0410M	×	○
R0413L	○	×
R0413R	○	×
R0414S	○	×
R0417L	○	×
R0417R	○	×

SYMBOL No.	TYPE 955/855/755	TYPE658/ 558/555/553
R0418L	○	×
R0418M	×	○
R0418R	○	×
R0419L	○	×
R0419R	○	×
R0420M	×	○
R0421M	×	JUMPER
R0422M	×	○
R0423M	×	○
R0424M	×	○
R0429R	○	×
R0430M	×	○
R0433	JUMPER	○
R0436M	×	○
R0437M	×	○
R0438M	×	JUMPER
R0439S	JUMPER	×
R0440S	JUMPER	×
R0445M	×	JUMPER
R0445S	○	×
R0448S	JUMPER	×
R0451M	×	○
R0452S	JUMPER	×
R0453M	×	○
R0455M	×	○
R0458M	×	○
R0459M	×	○
R0472M	×	○
R0475M	×	○
R0476M	×	○
R0480S	○	×
R0481S	○	×
ZD0405	×	○

AUD [AUDIO] -SIDE B-

SYMBOL No.	TYPE 955/855/755	TYPE658/ 558/555/553
C0401R	○	×
C0402R	○	×
C0403M	×	○
C0403R	○	×
C0404R	○	×
C0405R	○	×
C0407L	○	×
C0407R	○	×
C0408L	○	×
C0408R	○	×
C0409L	○	×
C0409M	×	○
C0409R	○	×
C0410L	○	×
C0410M	×	○
C0410R	○	×
C0411L	○	×
C0411M	×	○
C0412M	×	○
C0413S	○	×
C0414M	×	○
C0416S	○	×
C0417R	○	×
C0418M	×	○
C0418R	○	×
C0419L	○	×
C0419R	○	×
C0423S	○	×
C0424L	○	×
C0424R	○	×
C0426S	○	×
C0431M	×	○
C0432M	×	○
C0441R	○	×
C0445S	○	×
C0449S	○	×
C0450S	○	×
C0451L	○	×
C0451R	○	×
C0451S	○	×
C0452S	○	×
C0462R	○	×
C0474S	○	×
C0476L	○	×
C0476R	○	×
C0483S	○	×
C0485M	×	○
C0485S	○	×
IC0402S	○	×
IC0403S	○	×
R0402L	○	×
R0402R	○	×
R0403R	○	×
R0404L	JUMPER	×
R0404R	JUMPER	×
R0405S	○	×

SYMBOL No.	TYPE 955/855/755	TYPE658/ 558/555/553
R0406M	×	JUMPER
R0406S	JUMPER	×
R0407S	JUMPER	×
R0410S	○	×
R0411S	JUMPER	×
R0412M	×	○
R0415M	×	JUMPER
R0415S	○	×
R0417M	×	○
R0420L	○	×
R0420R	○	×
R0421L	○	×
R0421R	○	×
R0425M	×	○
R0426M	×	JUMPER
R0427M	×	JUMPER
R0428M	×	○
R0431M	×	JUMPER
R0434M	×	JUMPER
R0435S	○	×
R0436R	○	×
R0438S	JUMPER	×
R0440M	×	JUMPER
R0442M	×	JUMPER
R0446M	×	JUMPER
R0447S	○	×
R0449	○	JUMPER
R0450S	JUMPER	×
R0454M	×	JUMPER
R0456S	JUMPER	×
R0460M	×	JUMPER
R0461M	×	○
R0486S	○	×
R0487S	○	×
R0488L	○	×
R0488R	○	×
R0489L	○	×
R0489R	○	×
R0490L	○	×
R0490R	○	×
R0491L	○	×
R0491R	○	×
R0492L	○	×
R0492R	○	×
R0493L	○	×
R0493R	○	×
R0494L	○	×
R0494R	○	×

LCD [LCD DRIVE] -SIDE A-

SYMBOL No.	TYPE 955	TYPE 855/658	TYPE 755	TYPE 558/555/553
C5711	○	○	○	×
PG5703	○	○	○	×
SW5704	○	○	○	×

LCD [LCD DRIVE] -SIDE B-

SYMBOL No.	TYPE 955	TYPE 855/658	TYPE 755	TYPE 558/555/553
R5649	×	JUMPER	JUMPER	JUMPER
R5709	○	JUMPER	○	○
R5718	○	○	○	×
R5719	○	○	○	×
R5720	○	○	○	×
R5721	○	○	○	×
R5722	○	○	○	×
R5723	○	○	○	×
R5724	○	○	○	×

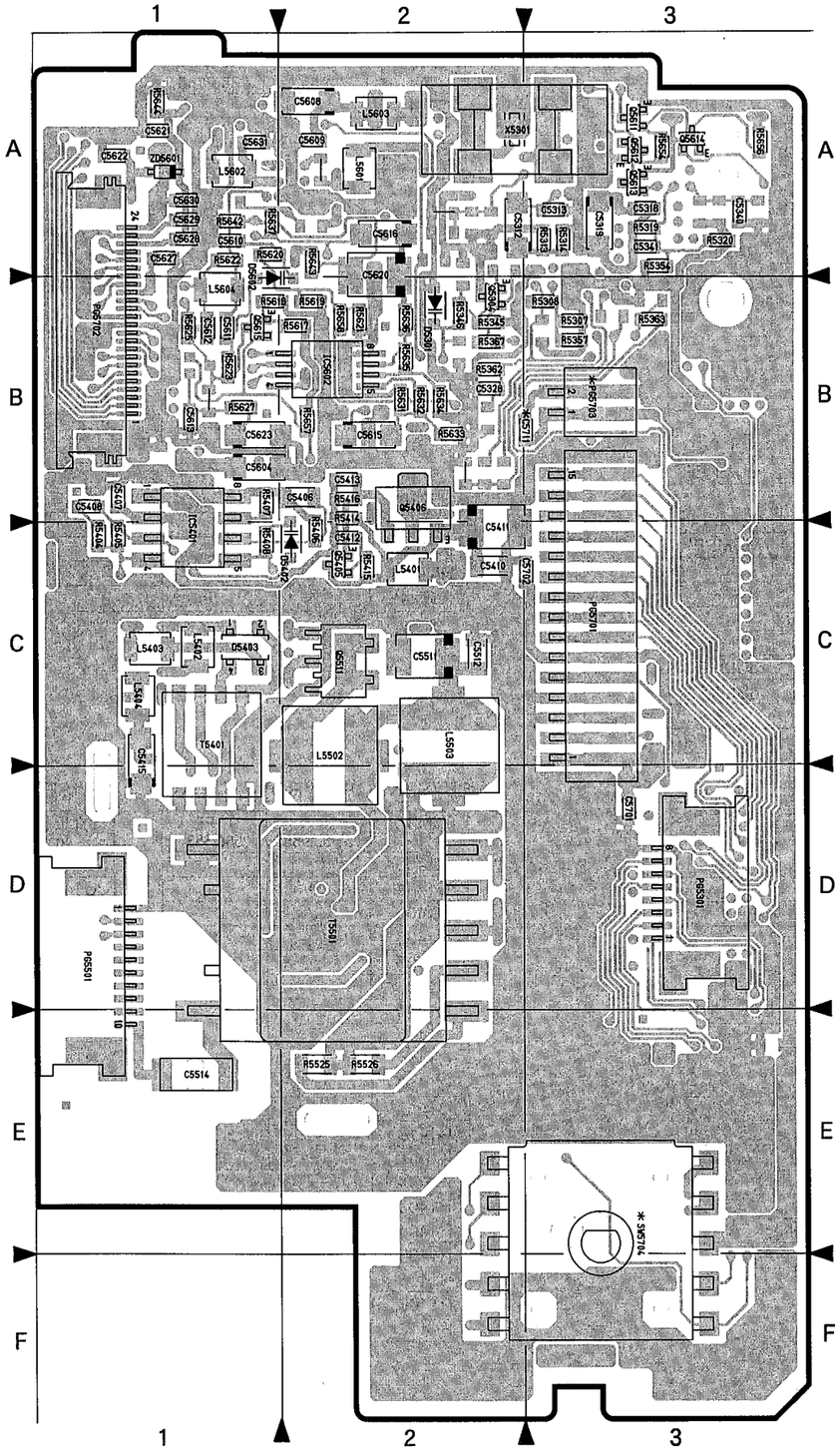
SE [SENSOR/GYRO] -SIDE A-

SYMBOL No.	TYPE955/855/ 755/658/555	TYPE 558/553
C1403	○	×
C1404	○	×
C1405	○	×
C1406	○	×
C1407	○	×
C1408	○	×
C1409	○	×
C1410	○	×
C1411	○	×
C1412	○	×
C1417	○	×
C1418	○	×
IC1401	○	×
IC1402	○	×
R1403	○	×
R1404	○	×
R1405	○	×
R1406	○	×
R1408	○	×
R1417	JUMPER	×

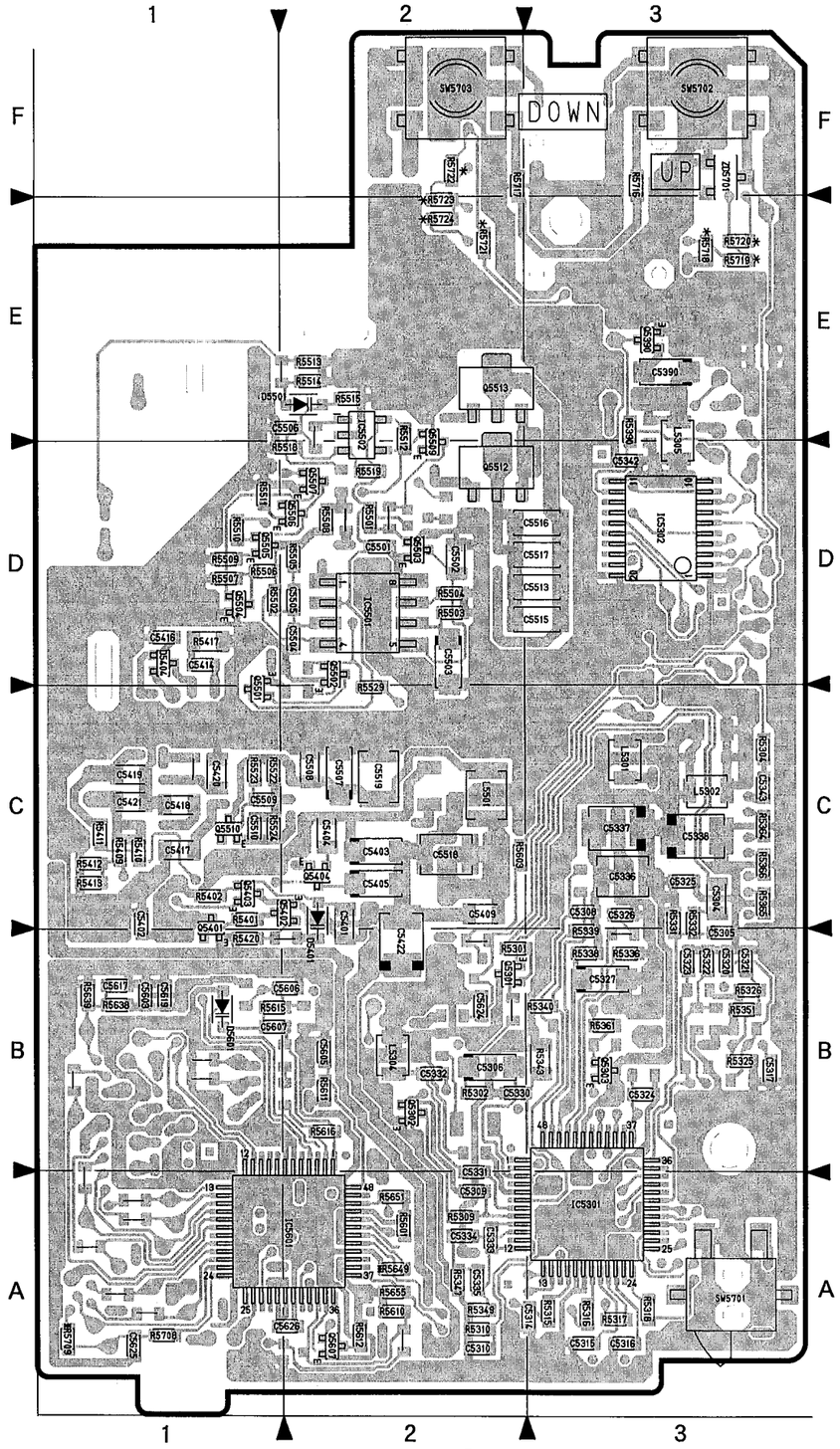
SE [SENSOR/GYRO] -SIDE B-

SYMBOL No.	TYPE955/855/ 755/658/555	TYPE 558/553
C1413	○	×
C1414	○	×
C1415	○	×
C1419	○	×
C1420	○	×
IC1403	○	×
Q1401	○	×
Q1402	○	×
R1401	JUMPER	×
R1407	○	×
R1409	○	×
R1410	○	×
R1411	○	×
R1412	○	×
R1413	○	×
R1414	○	×
R1416	○	×
R1418	○	×
R1419	○	×
R1420	○	×
R1421	○	×
R1422	JUMPER	×
R1423	JUMPER	×
R1424	○	×
R1425	○	×

LCD CIRCUIT BOARD



LCD [LCD DRIVE] —SIDE A—



LCD [LCD DRIVE] —SIDE B—
[PATTERN No. JA1662-6]

IDENTIFICATION OF PARTS LOCATION

VCA [MAIN]

Symbol No	Parts Location
BL	
BL0394	A-1A
BL0395	A-1B
BL0902	A-9E
BL0903	A-6F
C	
C0001	B-1B
C0003	B-1B
C0004	B-1B
C0005	B-1B
C0101	A-5C
C0102	A-4C
C0103	A-5A
C0104	A-5A
C0105	A-4A
C0106	A-5A
C0108	A-5A
C0109	A-4A
C0110	A-5A
C0111	A-5B
C0112	A-5B
C0113	A-5B
C0116	A-4B
C0117	B-4B
C0118	B-4A
C0119	B-4A
C0120	B-4A
C0121	B-4A
C0122	B-5B
C0124	B-4B
C0125	B-4B
C0126	B-4A
C0128	B-5B
C0130	B-3B
C0132	B-4C
C0133	B-4B
C0134	B-4B
C0136	B-4B
C0137	B-4C
C0140	B-4C
C0141	B-5C
C0142	A-5C
C0143	B-5B
C0144	B-4B
C0145	B-5B
C0146	B-5B
C0147	B-5B
C0148	B-4B
C0151	B-4B
C0154	B-4B
C0155	B-4B
C0156	B-5B
C0159	A-5C
C0164	B-4A
C0165	B-3A
C0170	A-4D
C0172	A-4D
C0173	A-3D

Symbol No.	Parts Location
C0176	A-4D
C0177	A-4D
C0178	A-4D
C0179	A-4D
C0180	A-3D
C0201	A-2B
C0202	A-2B
C0203	B-3B
C0204	B-3B
C0205	B-2B
C0206	B-2B
C0207	A-4C
C0208	B-2B
C0209	B-3C
C0210	B-3C
C0211	B-3C
C0212	A-2C
C0213	B-3C
C0214	B-4C
C0217	B-4C
C0218	A-4B
C0219	A-4B
C0220	A-4C
C0222	B-3B
C0223	A-3B
C0224	B-3B
C0225	B-3B
C0226	B-3B
C0227	A-3B
C0228	B-3B
C0229	B-3B
C0230	B-3B
C0232	B-3D
C0233	B-2C
C0234	B-4C
C0235	B-4B
C0237	B-4B
C0238	A-3D
C0240	B-3D
C0244	B-2C
C0245	B-3C
C0270	B-4C
C0301	B-2C
C0302	B-1B
C0303	B-2B
C0304	A-2A
C0305	B-2C
C0306	B-2B
C0307	B-2C
C0308	B-2C
C0310	A-2A
C0350	A-1C
C0351	A-2C
C0352	A-2B
C0353	A-2C
C0354	B-1C
C0355	B-1C
C0356	B-1D

Symbol No	Parts Location
C0358	A-2C
C0360	B-2D
C0364	B-2C
C0365	B-2C
C0367	B-1D
C0370	B-2A
C0371	B-2A
C0372	A-2C
C0391	B-2A
C0395	B-2B
C0501	B-1E
C0502	B-1E
C0503	B-1E
C0504	B-1E
C0505	B-1F
C0507	B-1F
C0508	B-1F
C0509	B-1F
C0510	B-1F
C0511	B-1F
C0513	B-1F
C0514	B-2F
C0516	B-2F
C0517	B-2E
C0518	B-2E
C0519	A-1E
C0520	B-2E
C0521	B-2E
C0522	B-1E
C0523	B-1E
C0524	B-1E
C0525	B-1E
C0527	B-2D
C0528	B-2E
C0529	B-2E
C0530	B-1D
C0534	B-1E
C0535	B-2E
C0538	A-3D
C0540	B-2E
C0541	B-2F
C0542	B-2F
C0543	A-2F
C0544	A-2F
C0545	B-2E
C0546	B-3E
C0550	B-3E
C0551	B-3F
C0552	B-3E
C0559	B-2E
C0562	B-2F
C0577	B-2D
C0578	A-2D
C0581	A-1D
C0583	B-2E
C0586	A-1D
C0601	B-7E
C0602	B-6E

Symbol No	Parts Location
C0603	B-6E
C0604	B-6E
C0605	B-6E
C0606	B-6F
C0607	B-6F
C0608	B-6F
C0609	B-6F
C0610	A-6E
C0611	B-6F
C0612	B-6F
C0613	B-7E
C0614	B-7E
C0615	B-7E
C0616	B-7E
C0617	B-7E
C0618	B-7E
C0619	B-6E
C0622	B-7E
C0631	A-3A
C0632	A-3A
C0633	B-2B
C0635	A-3A
C0636	A-3A
C0637	A-3A
C0638	A-3A
C0640	B-3A
C0641	A-3A
C0642	A-3A
C0643	A-3B
C0644	B-3A
C0645	A-4A
C0647	A-3B
C0648	A-3B
C0649	A-3B
C0650	A-3B
C0651	A-3B
C0652	A-3B
C0655	B-7E
C0656	B-7E
C0657	B-7E
C0658	B-7D
C0659	B-7E
C0660	B-8E
C0671	B-3A
C0672	B-2A
C0673	B-8D
C0691	B-9D
C0692	B-9D
C0693	B-9D
C0694	B-9D
C0695	B-9D
C0696	B-9D
C0902	A-7E
C0904	A-6E
C0905	A-6E
C0906	A-6D
C0907	A-6D
C0908	A-7D

Symbol No	Parts Location
C0909	A-6D
C0910	B-8F
C0911	A-7E
C0912	A-7E
C0913	B-7E
C0915	B-7E
C0916	B-8D
C0917	B-8E
C0918	A-8D
C0919	B-9C
C0920	A-8D
C0921	B-8D
C0922	B-8D
C0923	B-8D
C0924	B-4E
C0925	B-4E
C0926	B-3E
C0927	B-4E
C0928	A-9E
C0929	A-9E
C0930	B-8E
C0934	A-4F
C0935	B-4E
C0941	B-8D
C0942	A-8D
C0962	A-1E
C0965	B-8E
C0966	A-6E
C0967	A-9F
C0968	B-8E
C0971	A-7E
C0972	B-8E
C0974	B-8E
C0998	A-8D
C0999	A-9D
C1101	A-5E
C1102	A-4F
C1104	A-5E
C1105	A-5E
C1106	A-5E
C1107	A-4E
C1108	A-4E
C1109	A-4E
C1111	A-4E
C1112	A-4D
C1113	B-4E
C1114	B-4E
C1115	A-4D
C1116	A-4D
C1117	A-4D
C1118	A-4D
C1119	A-3D
C1123	A-4D
C1128	B-4C
C1129	B-3D
C1131	A-5E
C1133	B-4E
C1134	A-5D

Symbol No	Parts Location
C1135	A-5D
C1136	B-5C
C1138	A-5E
C1139	A-5E
C1140	B-4E
C1141	B-5D
C1142	B-6E
C1143	B-4E
C1144	A-5E
C1145	B-4E
C1146	B-5D
C1147	A-4D
C1148	B-5D
C1149	B-4E
C1150	A-4E
C1151	A-4E
C1153	A-5E
C1154	B-5D
C1155	B-4E
C1159	B-4E
C1161	A-4E
C1165	A-4D
C1167	B-4C
C1172	A-4D
C1201	B-6D
C1202	B-6D
C1203	B-6D
C1204	B-6D
C1205	B-6D
C1206	B-6D
C1207	B-6D
C1208	B-7D
C1209	B-7D
C1210	B-7D
C1211	B-7E
C1212	B-6E
C1213	B-4E
C1301	A-6D
C1302	A-6D
C1305	B-5D
C1311	B-6D
C1312	A-6C
C9450	B-1A
D	
D0001	A-1C
D0002	B-1B
D0003	B-1B
D0101	A-5A
D0203	B-4C
D0204	A-2B
D0205	A-2C
D0206	A-3D
D0207	A-2B
D0552	A-2F
D0553	A-2E
D0901	B-8E
D0902	A-6E
D0907	B-7F

Symbol No	Parts Location
D0909	A-6E
D0910	A-1C
D1101	B-3F
D1103	B-3E
D1105	A-5E
D1106	A-9E
D1301	B-5D
D1302	B-3F
F	
F0551	B-1C
F0552	B-1C
F0553	B-1C
IC	
IC0001	B-1B
IC0101	A-5B
IC0102	B-5C
IC0201	B-3C
IC0202	A-3C
IC0203	B-2C
IC0204	B-2C
IC0551	B-1F
IC0553	A-2D
IC0601	B-7E
IC0631	A-3B
IC0651	B-7D
IC0671	B-3A
IC0901	A-8E
IC0902	A-6D
IC0904	B-4E
IC0906	B-8E
IC0907	A-9D
IC1101	A-4E
IC1102	B-4D
IC1103	A-5D
IC1104	B-5E
IC1105	B-5D
IC1201	B-6D
IC1301	A-6C
JK	
JK0200	A-1A
L	
L0101	B-4B
L0102	B-4A
L0103	B-4A
L0105	B-4B
L0107	B-5C
L0108	A-5C
L0109	B-5A
L0110	B-5B
L0113	B-4A
L0114	B-5A
L0116	A-4D
L0117	A-4D
L0118	A-3D
L0201	A-4C
L0202	A-2B
L0203	B-2C
L0204	B-2D

Symbol No	Parts Location
L0205	B-3B
L0207	B-3C
L0208	B-3C
L0301	A-2A
L0350	B-1D
L0551	A-2D
L0552	A-2E
L0554	A-2D
L0556	A-3D
L0558	B-2E
L0559	B-2F
L0560	B-2F
L0561	A-3E
L0563	A-3E
L0564	A-3E
L0565	A-3E
L0601	A-6F
L0902	B-4E
L0903	B-1E
L0904	A-6E
L0906	A-9D
L0907	A-4F
L0908	A-8D
L0909	A-7F
L1101	B-3F
L1102	B-3E
L1104	B-3E
L1105	A-5D
L1106	B-4E
L1107	A-5D
L1108	B-3E
L1301	A-6D
LED	
LED0901	A-1E
LED0902	A-9E
PG	
PG0001	A-1B
PG0101	A-5A
PG0201	B-9D
PG0402	A-2A
PG0552	A-8F
PG0601	A-7F
PG0602	B-7C
PG0603	A-3A
PG0604	A-3A
PG0901	A-8C
PG0902	B-7F
PG0903	A-1F
PG0904	B-9E
PG0907	A-8F
PG0908	A-5E
PG1101	A-5D
PG1103	A-1D
PG1104	A-6F
PG1105	A-7F
PG1106	B-9D
PG1301	A-7D
Q	

Symbol No	Parts Location
Q0001	A-1B
Q0002	A-2C
Q0003	A-1C
Q0004	A-2B
Q0101	A-5C
Q0102	B-5B
Q0103	A-4A
Q0104	A-4A
Q0105	A-4C
Q0107	B-5B
Q0108	B-4A
Q0109	B-5A
Q0110	B-4A
Q0111	B-4B
Q0112	B-4B
Q0113	B-2B
Q0116	B-5B
Q0117	B-4B
Q0118	B-4A
Q0119	B-3A
Q0123	B-3A
Q0130	B-5C
Q0131	A-5B
Q0133	B-4B
Q0139	B-4B
Q0140	A-4D
Q0144	A-3D
Q0203	B-2C
Q0206	B-2B
Q0395	B-2B
Q0401L	A-1A
Q0401R	A-1A
Q0402	A-1A
Q0551	B-2E
Q0552	B-3F
Q0553	B-2E
Q0555	B-2D
Q0556	B-2D
Q0557	B-2F
Q0558	B-2F
Q0559	B-2E
Q0561	B-3F
Q0562	B-3F
Q0563	B-3F
Q0570	B-8F
Q0571	B-8F
Q0602	B-6F
Q0603	B-6E
Q0604	B-7E
Q0901	A-6D
Q0902	A-6D
Q0904	A-6E
Q0905	B-8D
Q0907	B-7E
Q0909	B-8E
Q0911	B-3E
Q0913	B-3E
Q0914	A-1E

Symbol No	Parts Location
Q0915	A-9E
Q0916	A-7E
Q0917	A-1C
Q1201	B-6D
Q1202	B-6E
Q1203	B-6E
Q1301	A-7C
R	
R0001	B-1B
R0002	B-1C
R0003	B-1C
R0006	A-1B
R0007	A-1C
R0008	A-1C
R0009	A-1C
R0010	A-2B
R0011	B-1B
R0012	B-1B
R0013	B-1C
R0014	B-1C
R0017	B-1B
R0018	B-1C
R0020	A-1C
R0024	B-1C
R0025	B-1C
R0101	A-5A
R0102	A-5A
R0103	A-4A
R0104	A-4B
R0105	B-5B
R0106	A-5B
R0107	A-5B
R0108	A-5B
R0109	A-5B
R0110	A-5C
R0111	A-4C
R0113	A-4A
R0114	A-5A
R0119	A-4A
R0120	A-4A
R0121	B-4A
R0122	B-4A
R0123	B-5A
R0124	B-4A
R0125	B-4A
R0127	A-4C
R0128	A-5C
R0129	A-4C
R0130	A-4C
R0131	B-5B
R0132	A-4B
R0139	B-2B
R0140	B-4B
R0141	B-4B
R0142	B-4B
R0143	B-4B
R0144	B-4B
R0145	B-4B

Symbol No	Parts Location
R0146	B-4B
R0147	A-5C
R0148	B-3B
R0149	B-3B
R0150	B-4C
R0151	B-5B
R0152	B-5C
R0157	B-4B
R0158	B-4B
R0159	B-3A
R0160	B-3A
R0161	B-3A
R0163	B-4B
R0164	B-4B
R0165	B-4B
R0167	A-4B
R0168	A-3D
R0170	A-4D
R0171	B-4A
R0172	A-4D
R0173	A-4D
R0174	A-3D
R0175	A-4D
R0176	A-4D
R0185	B-4C
R0188	B-5B
R0190	B-5B
R0191	B-5B
R0194	B-4A
R0195	B-4A
R0196	B-4A
R0197	B-4A
R0198	B-4A
R0199	B-3A
R0201	B-3B
R0202	B-2B
R0203	B-2B
R0205	A-4C
R0206	B-3B
R0207	B-3B
R0208	B-3B
R0209	B-3B
R0210	B-3B
R0211	B-3B
R0212	B-3B
R0214	B-4B
R0215	B-3A
R0219	B-2D
R0220	B-2D
R0222	A-2C
R0225	B-2C
R0227	B-2C
R0230	A-2B
R0231	B-4C
R0232	B-2B
R0233	B-2B
R0234	A-4B
R0238	A-1B

Symbol No	Parts Location
R0239	A-1A
R0243	B-3C
R0262	B-4C
R0263	B-3C
R0265	B-3C
R0266	B-2C
R0267	B-3D
R0268	B-4C
R0269	B-4C
R0271	B-8E
R0272	B-8E
R0301	B-2B
R0302	B-2B
R0303	B-2B
R0305	B-2B
R0310	A-1A
R0311	A-2A
R0312	B-2C
R0315	B-2C
R0350	A-2C
R0351	B-1C
R0354	B-2B
R0361	B-2C
R0362	B-2C
R0374	B-1C
R0391	B-2A
R0397	B-2A
R0471	A-1A
R0472	A-1A
R0475	A-1B
R0476	A-1A
R0497	B-1A
R0501	B-1E
R0502	B-1F
R0504	B-1F
R0505	B-1F
R0506	B-1F
R0507	B-1F
R0508	B-1F
R0510	B-1F
R0511	B-1F
R0512	B-2F
R0513	B-2F
R0514	B-2F
R0516	B-2F
R0517	B-2E
R0518	B-2E
R0519	B-2E
R0522	B-1E
R0525	B-1E
R0529	B-1D
R0531	B-1D
R0532	A-1D
R0533	B-3F
R0534	B-3F
R0539	B-1E
R0540	B-1E
R0541	B-1E

Symbol No	Parts Location
R0545	B-2D
R0546	B-2D
R0549	B-2F
R0550	B-2F
R0551	B-2F
R0552	B-2F
R0556	B-2F
R0557	B-2F
R0558	B-2F
R0561	B-1D
R0562	B-1E
R0566	B-2D
R0567	B-1D
R0568	A-1D
R0569	A-1D
R0583	A-3F
R0585	B-1F
R0597	B-8F
R0598	B-8F
R0599	B-8F
R0601	B-7E
R0602	B-6E
R0603	B-6E
R0604	B-6F
R0605	B-6F
R0606	B-6E
R0607	B-6E
R0608	B-6E
R0609	B-6E
R0610	B-6E
R0611	B-6E
R0612	B-6F
R0613	B-6F
R0614	B-6F
R0616	B-6F
R0619	B-7E
R0620	B-7E
R0621	B-7E
R0622	B-7E
R0623	B-7E
R0624	B-7E
R0628	B-7E
R0640	B-3B
R0641	B-3B
R0642	B-3B
R0643	A-2A
R0644	A-2A
R0662	B-7D
R0664	B-7D
R0665	B-7E
R0666	B-8E
R0667	B-8E
R0668	B-8D
R0671	B-3A
R0672	B-3A
R0681	A-6F
R0682	B-7F
R0691	B-8D

Symbol No	Parts Location
R0692	B-9D
R0693	B-9D
R0694	B-8D
R0695	B-9D
R0696	B-9D
R0701	B-6F
R0702	B-4F
R0703	B-4F
R0706	B-8E
R0707	B-8E
R0709	B-6F
R0717	B-8E
R0718	B-8E
R0719	B-8E
R0721	B-4F
R0722	B-4F
R0723	B-4F
R0724	A-4F
R0725	A-4F
R0728	B-4F
R0733	A-5F
R0901	A-6D
R0903	A-6D
R0904	A-6D
R0905	A-6D
R0906	A-6D
R0907	A-6D
R0908	A-6E
R0909	A-6E
R0912	A-6E
R0913	A-6E
R0914	B-8F
R0915	B-8F
R0916	B-8F
R0917	B-8F
R0918	B-8F
R0919	B-8F
R0920	A-8E
R0921	A-8E
R0922	B-8F
R0923	B-8E
R0924	B-8E
R0925	B-8E
R0926	B-8E
R0928	B-8E
R0929	A-8F
R0930	A-8E
R0931	B-8F
R0932	B-8E
R0933	B-8E
R0934	B-8E
R0935	B-8E
R0938	B-7E
R0939	B-8E
R0941	B-6F
R0942	B-7E
R0943	B-8E
R0945	B-7E

Symbol No	Parts Location
R0948	B-7E
R0949	B-6F
R0950	B-8F
R0951	B-8F
R0952	B-7E
R0954	B-8D
R0955	B-8C
R0956	B-8C
R0957	B-8C
R0958	B-8C
R0959	B-8D
R0960	B-8D
R0963	A-8D
R0965	A-1E
R0966	A-6F
R0967	A-7E
R0968	A-7E
R0969	B-9D
R0970	B-7F
R0971	B-8D
R0972	B-9D
R0973	A-6E
R0974	A-9D
R0975	A-6E
R0976	B-8D
R0977	B-8D
R0978	B-9C
R0979	A-8D
R0980	B-8C
R0981	B-9C
R0982	B-9C
R0983	B-9C
R0984	A-8C
R0985	B-9C
R0986	B-3E
R0987	B-3E
R0988	B-4F
R0989	B-4F
R0990	B-4F
R0992	A-6E
R0993	A-9E
R0994	A-6E
R0995	B-4E
R0999	A-9D
R1101	A-5E
R1112	B-3D
R1113	B-3E
R1114	B-4D
R1115	A-4D
R1116	A-4D
R1117	A-4D
R1118	A-4D
R1119	A-4D
R1120	A-4D
R1121	B-5D
R1131	B-6E
R1132	B-6E
R1133	B-6E

Symbol No	Parts Location
R1134	B-6E
R1135	B-5C
R1136	B-5F
R1137	B-5F
R1138	A-5F
R1139	B-5F
R1141	B-5D
R1143	B-5F
R1145	B-4F
R1146	B-5F
R1147	B-5F
R1148	B-5D
R1149	B-6E
R1150	B-6E
R1151	A-5F
R1152	B-5D
R1153	B-5D
R1154	B-5C
R1155	B-5D
R1156	B-6E
R1157	B-5D
R1158	B-6E
R1159	A-1D
R1160	A-1D
R1161	A-1D
R1163	A-5F
R1164	A-4D
R1166	A-5F
R1167	A-5F
R1168	A-5E
R1169	B-5D
R1170	A-5C
R1171	B-5D
R1172	B-4E
R1173	A-4D
R1175	B-5F
R1176	B-5F
R1180	A-9D
R1181	B-7E
R1201	B-6D
R1202	B-6D
R1203	B-6D
R1204	B-6D
R1205	B-6D
R1206	B-6D
R1207	B-6D
R1208	B-7D
R1209	B-7D
R1210	B-7D
R1211	B-7D
R1212	B-7D
R1213	B-7D
R1214	B-7D
R1215	B-7D
R1216	B-7D
R1218	B-7E
R1220	B-7E
R1221	B-7D

Symbol No	Parts Location
R1222	B-6D
R1223	B-6D
R1225	B-6E
R1226	B-6D
R1227	B-4E
R1303	B-5D
R1312	A-6D
R1313	A-6D
R1316	A-7C
R1317	A-7D
SW	
SW0902	A-4F
SW0903	A-2F
SW0904	A-5F
SW0905	A-3F
SW1101	A-1D
SW1102	A-9E
T	
T0551	A-2F
TL	
TL1301	A-7C
TL1302	A-7D
TL1303	A-7D
TL1304	A-7C
TL1305	A-7D
TL1306	A-7D
TL1314	A-7C
TL1315	A-7D
TL1316	A-7D
TL1317	B-6C
TL1318	B-7D
TL1319	A-6D
TL1320	A-6D
TL1325	A-6D
TL1331	A-6C
X	
X0201	A-4B
X0901	A-7E
X0902	A-9E

IDENTIFICATION OF PARTS LOCATION

SE [SENSOR/GYRO]

Symbol No	Parts Location
C	
C1002	A-3C
C1004	B-2A
C1005	A-2D
C1006	B-2A
C1007	B-1C
C1008	B-2A
C1009	B-2A
C1010	B-1A
C1011	B-1B
C1012	A-1C
C1403	A-2A
C1404	A-1B
C1405	A-1A
C1406	A-2C
C1407	A-2A
C1408	A-1B
C1409	A-2A
C1410	A-1B
C1411	A-1C
C1412	A-1C
C1413	B-2C
C1414	B-1C
C1415	B-2C
C1417	A-2C
C1418	A-3D
C1419	B-1C
C1420	B-1C
D	
D1002	B-2A
IC	
IC1001	B-2B
IC1401	A-2A
IC1402	A-1B
IC1403	B-1C
PG	
PG1001	B-3C
Q	
Q1001	B-2C
Q1401	B-2D
Q1402	B-2C
R	
R1001	B-2C
R1002	A-1C
R1003	B-2A
R1006	B-2A
R1009	B-1A
R1401	B-2C
R1403	A-2A
R1404	A-1B
R1405	A-2A
R1406	A-1B
R1407	B-1C
R1408	A-1C
R1409	B-2C
R1410	B-1C
R1411	B-2C
R1412	B-1C

Symbol No	Parts Location
R1413	B-2C
R1414	B-1C
R1416	B-2D
R1417	A-3D
R1418	B-1C
R1419	B-2C
R1420	B-1C
R1421	B-2C
R1422	B-2C
R1423	B-1C
R1424	B-2C
R1425	B-2C

AUD [AUDIO]

Symbol No.	Parts Location
C	
C0401L	A-2B
C0401R	B-2C
C0402L	A-1B
C0402R	B-3D
C0403	B-2B
C0403M	B-2D
C0403R	B-2C
C0404L	A-2C
C0404M	A-2C
C0404R	B-2D
C0405L	A-1B
C0405R	B-2D
C0406M	A-1B
C0406R	A-2D
C0407L	B-2B
C0407R	B-2D
C0408L	B-2B
C0408M	A-1B
C0408R	B-1D
C0409L	B-1B
C0409M	B-2B
C0409R	B-1C
C0410L	B-1B
C0410M	B-2B
C0410R	B-1C
C0411L	B-2B
C0411M	B-2B
C0411R	A-2C
C0412L	A-1C
C0412M	B-2B
C0412R	A-2D
C0413M	A-1C
C0413S	B-1B
C0414M	B-1B
C0415	B-1B
C0416M	A-1C
C0416S	B-1B
C0417M	A-1B
C0417R	B-1C
C0418L	A-1C
C0418M	B-1B
C0418R	B-1C
C0419L	B-1A
C0419M	A-1C
C0419R	B-2A
C0420M	A-1B
C0422M	A-1C
C0422S	A-1B
C0423M	A-1C
C0423S	B-2B
C0424L	B-1A
C0424R	B-2A
C0425	A-1C
C0426S	B-2C
C0428	A-1D
C0429M	A-2C
C0430L	A-1A

Symbol No	Parts Location
C0430R	A-2A
C0431L	A-1A
C0431M	B-2D
C0431R	A-2A
C0432	B-1A
C0432M	B-2D
C0433	B-1B
C0434M	A-2C
C0435M	A-2C
C0436M	A-1A
C0437M	A-2B
C0438M	A-2C
C0439M	A-2B
C0440M	A-2B
C0441L	A-2B
C0441R	B-3D
C0442	A-1A
C0443	A-2C
C0445S	B-1C
C0446M	A-1C
C0447M	A-2C
C0448	A-1B
C0449S	B-2A
C0450S	B-1A
C0451L	B-2A
C0451R	B-1A
C0451S	B-1A
C0452S	B-2A
C0462L	A-2C
C0462R	B-2C
C0463	A-1B
C0467S	A-1B
C0472M	A-2B
C0474S	B-2A
C0476L	B-1A
C0476R	B-2A
C0482	A-2B
C0483S	B-1A
C0484M	A-2D
C0485M	B-1D
C0485S	B-1D
C9401	A-2B
IC	
IC0401	B-1C
IC0402S	B-1B
IC0403S	B-1A
L	
L0401	B-2A
L0403	A-2B
L0405	A-1A
PG	
PG0401	A-2A
PG0405	A-3A
Q	
Q0403L	A-1B
Q0403M	A-2B
Q0403R	A-2B
Q0404	B-1A

Symbol No	Parts Location
Q0411	A-1A
Q0412	A-1A
Q0414S	A-1B
Q0415	B-2B
Q0417M	A-2B
Q9401	A-2B
R	
R0401M	A-1C
R0402L	B-1B
R0402M	A-2B
R0402R	B-1D
R0403R	B-1C
R0404L	B-2B
R0404R	B-2D
R0405S	B-2C
R0406M	B-1C
R0406S	B-1C
R0407S	B-2C
R0408S	A-2C
R0409M	A-2C
R0409S	A-2A
R0410M	A-1C
R0410S	B-2C
R0411S	B-2B
R0412M	B-1C
R0413L	A-2C
R0413R	A-2C
R0414S	A-2A
R0415M	B-2C
R0415S	B-2B
R0417L	A-1A
R0417M	B-2C
R0417R	A-2A
R0418L	A-1A
R0418M	A-2C
R0418R	A-2B
R0419L	A-1B
R0419R	A-2A
R0420L	B-1A
R0420M	A-2C
R0420R	B-2A
R0421L	B-1A
R0421M	A-2C
R0421R	B-2A
R0422M	A-2B
R0423M	A-2B
R0424M	A-2B
R0425M	B-2A
R0426M	B-2D
R0427M	B-2C
R0428M	B-1B
R0429R	A-2A
R0430M	A-2B
R0431M	B-2B
R0432	A-2B
R0433	A-1B
R0434M	B-2B
R0435S	B-1B

Symbol No	Parts Location
R0436M	A-1B
R0436R	B-2D
R0437M	A-1B
R0438M	A-2C
R0438S	B-1B
R0439S	A-1C
R0440M	B-1C
R0440S	A-1C
R0442M	B-2C
R0445M	A-2A
R0445S	A-2A
R0446M	B-2C
R0447S	B-2C
R0448S	A-1C
R0449	B-1B
R0450S	B-2C
R0451M	A-2C
R0452S	A-2C
R0453M	A-2B
R0454M	B-2C
R0455M	A-2B
R0456S	B-2B
R0458M	A-2B
R0459M	A-2B
R0460	B-1A
R0460M	B-2D
R0461	A-1A
R0461M	B-2D
R0462	B-2B
R0472M	A-2B
R0473	A-1A
R0474	A-1A
R0475M	A-2B
R0476M	A-2B
R0480S	A-1B
R0481S	A-1B
R0483	B-3A
R0486S	B-1A
R0487S	B-2A
R0488L	B-1A
R0488R	B-2A
R0489L	B-1A
R0489R	B-1A
R0490L	B-1A
R0490R	B-2A
R0491L	B-1A
R0491R	B-1A
R0492L	B-2A
R0492R	B-1A
R0493L	B-1A
R0493R	B-2A
R0494L	B-1A
R0494R	B-2A
R9401	A-2B
R9402	A-2B
R9403	A-2B
R9404	A-2B
ZD	

Symbol No	Parts Location
ZD0404	A-2A
ZD0405	A-2B

EMQ [ELECTRONIC VIEWFINDER]

Symbol No	Parts Location
C	
C2001	B-1B
C2002	B-2A
C2003	B-2A
C2004	A-2B
C2005	A-1A
C2006	A-2A
C2007	A-2A
C2008	B-2A
C2009	A-1A
C2011	A-2A
C2012	A-2B
C2013	A-4B
C2014	A-4B
C2015	A-3A
C2016	A-3A
C2017	B-2A
C2018	B-1A
D	
D2001	B-3A
D2002	A-1A
IC	
IC2001	A-4A
L	
L2001	B-3A
L2002	A-1B
PG	
PG2001	A-3B
PG2002	A-4A
Q	
Q2001	A-2B
Q2002	A-3A
R	
R2001	A-1B
R2002	A-2A
R2003	A-2A
R2004	A-2A
R2005	A-2A
R2006	A-1A
R2007	A-1A
R2008	A-2B
R2009	A-3B
R2011	A-2A
R2012	A-2B
R2013	A-3A
R2014	A-3A
R2015	A-4B
R2016	B-1A
R2017	A-3B
R2018	A-3A
R2019	A-3A
R2020	A-3A
R2021	B-1A
R2022	A-4A
R2024	A-2A
R2025	A-3A
R2026	B-1A
R2027	B-1A

Symbol No	Parts Location
RT	
RT2001	A-2A
RT2002	A-3A
RT2003	B-1A
T	
T2001	A-1A

LCD [LCD DRIVE]

Symbol No	Parts Location
C	
C5304	B-3C
C5305	B-3B
C5306	B-2B
C5308	B-3C
C5309	B-2A
C5310	B-2A
C5312	A-2A
C5313	A-3A
C5314	B-3A
C5315	B-3A
C5316	B-3A
C5317	B-3B
C5318	A-3A
C5319	A-3A
C5320	B-3B
C5321	B-3B
C5322	B-3B
C5323	B-3B
C5324	B-3B
C5325	B-3C
C5326	B-3C
C5327	B-3B
C5328	A-2B
C5330	B-2B
C5331	B-2A
C5332	B-2B
C5333	B-2A
C5334	B-2A
C5335	B-2A
C5336	B-3C
C5337	B-3C
C5338	B-3C
C5340	A-3A
C5341	A-3A
C5342	B-3D
C5343	B-3C
C5390	B-3E
C5401	B-2C
C5402	B-1C
C5403	B-2C
C5404	B-2C
C5405	B-2C
C5406	A-2B
C5407	A-1B
C5408	A-1B
C5409	B-2C
C5410	A-2C
C5411	A-2C
C5412	A-2C
C5413	A-2B
C5414	B-1D
C5415	A-1C
C5416	B-1D
C5417	B-1C
C5418	B-1C
C5419	B-1C
C5420	B-1C

Symbol No	Parts Location
C5421	B-1C
C5422	B-2B
C5501	B-2D
C5502	B-2D
C5503	B-2D
C5504	B-2D
C5505	B-2D
C5506	B-2E
C5507	B-2C
C5508	B-2C
C5509	B-1C
C5510	B-1C
C5511	A-2C
C5512	A-2C
C5513	B-3D
C5514	A-1E
C5515	B-3D
C5516	B-3D
C5517	B-3D
C5518	B-2C
C5519	B-2C
C5603	B-1B
C5604	A-1B
C5605	B-2B
C5606	B-2B
C5607	B-1B
C5608	A-2A
C5609	A-2A
C5610	A-1A
C5611	A-1B
C5612	A-1B
C5613	A-1B
C5615	A-2B
C5616	A-2A
C5617	B-1B
C5619	B-1B
C5620	A-2A
C5621	A-1A
C5622	A-1A
C5623	A-1B
C5624	B-2B
C5625	B-1A
C5626	B-2A
C5627	A-1A
C5628	A-1A
C5629	A-1A
C5630	A-1A
C5631	A-1A
C5701	A-3D
C5702	A-3C
C5711	A-3B
D	
D5301	A-2B
D5401	B-2C
D5402	A-2C
D5403	A-1C
D5404	B-1D
D5501	B-2E

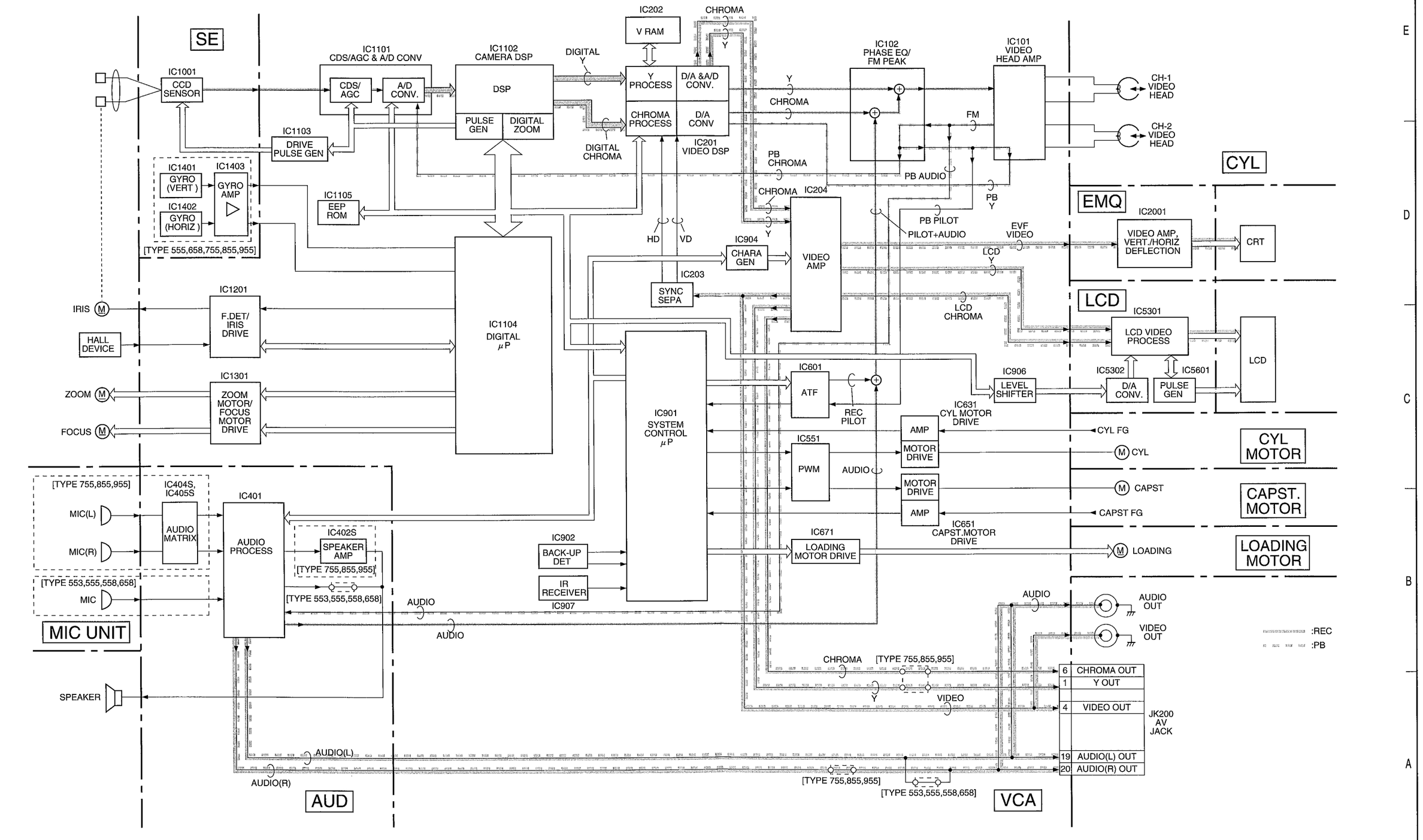
Symbol No	Parts Location
D5601	B-1B
D5602	A-1B
IC	
IC5301	B-3A
IC5302	B-3D
IC5401	A-1C
IC5501	B-2D
IC5502	B-2E
IC5601	B-2A
IC5602	A-2B
L	
L5301	B-3C
L5302	B-3C
L5304	B-2B
L5305	B-3D
L5401	A-2C
L5402	A-1C
L5403	A-1C
L5404	A-1C
L5501	B-2C
L5502	A-2C
L5503	A-2C
L5601	A-2A
L5602	A-1A
L5603	A-2A
L5604	A-1B
PG	
PG5301	A-3D
PG5501	A-1D
PG5701	A-3C
PG5702	A-1B
PG5703	A-3B
Q	
Q5301	B-2B
Q5302	B-2B
Q5303	B-3B
Q5304	A-2B
Q5390	B-3E
Q5401	B-1C
Q5402	B-2C
Q5403	B-1C
Q5404	B-2C
Q5405	A-2C
Q5406	A-2B
Q5501	B-1C
Q5502	B-2D
Q5503	B-2D
Q5504	B-1D
Q5505	B-1D
Q5506	B-2D
Q5507	B-2D
Q5509	B-2D
Q5510	B-1C
Q5511	A-2C
Q5512	B-2D
Q5513	B-2E
Q5607	B-2A
Q5611	A-3A

Symbol No	Parts Location
Q5612	A-3A
Q5613	A-3A
Q5614	A-3A
Q5615	A-1B
R	
R5301	B-2B
R5302	B-2B
R5304	B-3C
R5307	A-3B
R5308	A-3B
R5309	B-2A
R5310	B-2A
R5313	A-3A
R5314	A-3A
R5315	B-3A
R5316	B-3A
R5317	B-3A
R5318	B-3A
R5319	A-3A
R5320	A-3A
R5325	B-3B
R5326	B-3B
R5331	B-3C
R5332	B-3C
R5336	B-3B
R5338	B-3B
R5339	B-3B
R5340	B-3B
R5343	B-3B
R5345	A-2B
R5346	A-2B
R5347	B-2A
R5349	B-2A
R5351	B-3B
R5354	A-3A
R5357	A-3B
R5361	B-3B
R5362	A-2B
R5363	A-3B
R5364	B-3C
R5365	B-3C
R5366	B-3C
R5367	A-2B
R5390	B-3E
R5401	B-1C
R5402	B-1C
R5404	A-1C
R5405	A-1C
R5406	A-2C
R5407	A-1B
R5408	A-1C
R5409	B-1C
R5410	B-1C
R5411	B-1C
R5412	B-1C
R5413	B-1C
R5414	A-2B
R5415	A-2C

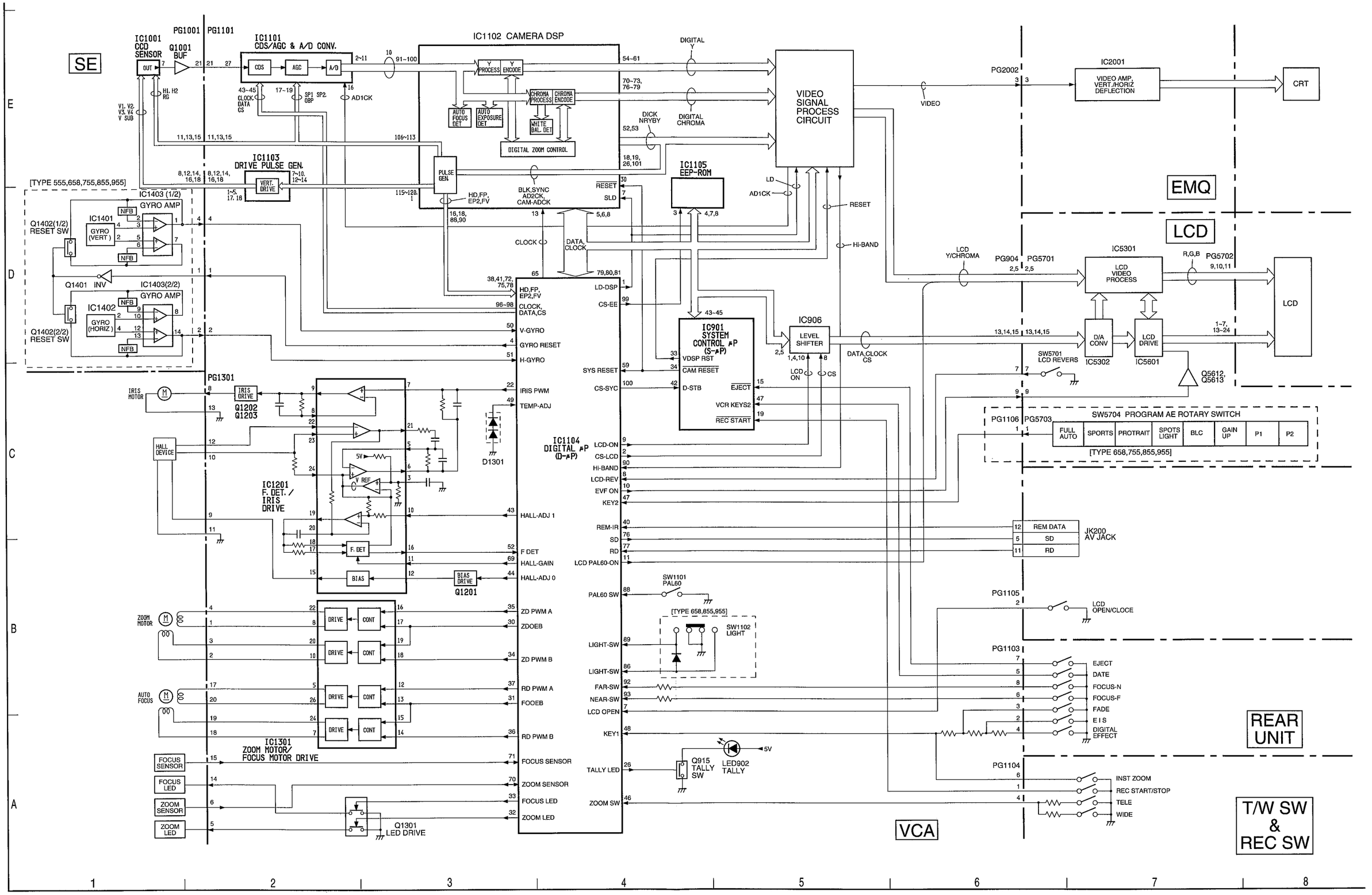
Symbol No	Parts Location
R5416	A-2B
R5417	B-1D
R5420	B-1B
R5501	B-2D
R5502	B-1D
R5503	B-2D
R5504	B-2D
R5505	B-2D
R5506	B-1D
R5507	B-1D
R5508	B-2D
R5509	B-1D
R5510	B-1D
R5511	B-1D
R5512	B-2E
R5513	B-2E
R5514	B-2E
R5515	B-2E
R5518	B-2D
R5519	B-2D
R5522	B-1C
R5523	B-1C
R5524	B-1C
R5525	A-2E
R5526	A-2E
R5529	B-2C
R5601	B-2A
R5603	B-2C
R5610	B-2A
R5611	B-2B
R5612	B-2A
R5615	B-1B
R5616	B-2B
R5617	A-2B
R5618	A-1B
R5619	A-2B
R5620	A-1A
R5621	A-2B
R5622	A-1A
R5623	A-1B
R5625	A-1B
R5627	A-1B
R5631	A-2B
R5632	A-2B
R5633	A-2B
R5634	A-2B
R5635	A-2B
R5636	A-2B
R5637	A-1A
R5638	B-1B
R5639	B-1B
R5642	A-1A
R5643	A-2A
R5644	A-1A
R5649	B-2A
R5651	B-2A
R5654	A-3A
R5655	B-2A

Symbol No	Parts Location
R5656	A-3A
R5657	A-2B
R5658	A-2B
R5708	B-1A
R5709	B-1A
R5716	B-3F
R5717	B-2F
R5718	B-3E
R5719	B-3E
R5720	B-3E
R5721	B-2E
R5722	B-2F
R5723	B-2E
R5724	B-2E
SW	
SW5701	B-3A
SW5702	B-3F
SW5703	B-2F
SW5704	A-3E
T	
T5401	A-1C
T5501	A-2D
X	
X5301	A-2A
ZD	
ZD5601	A-1A
ZD5701	B-3F

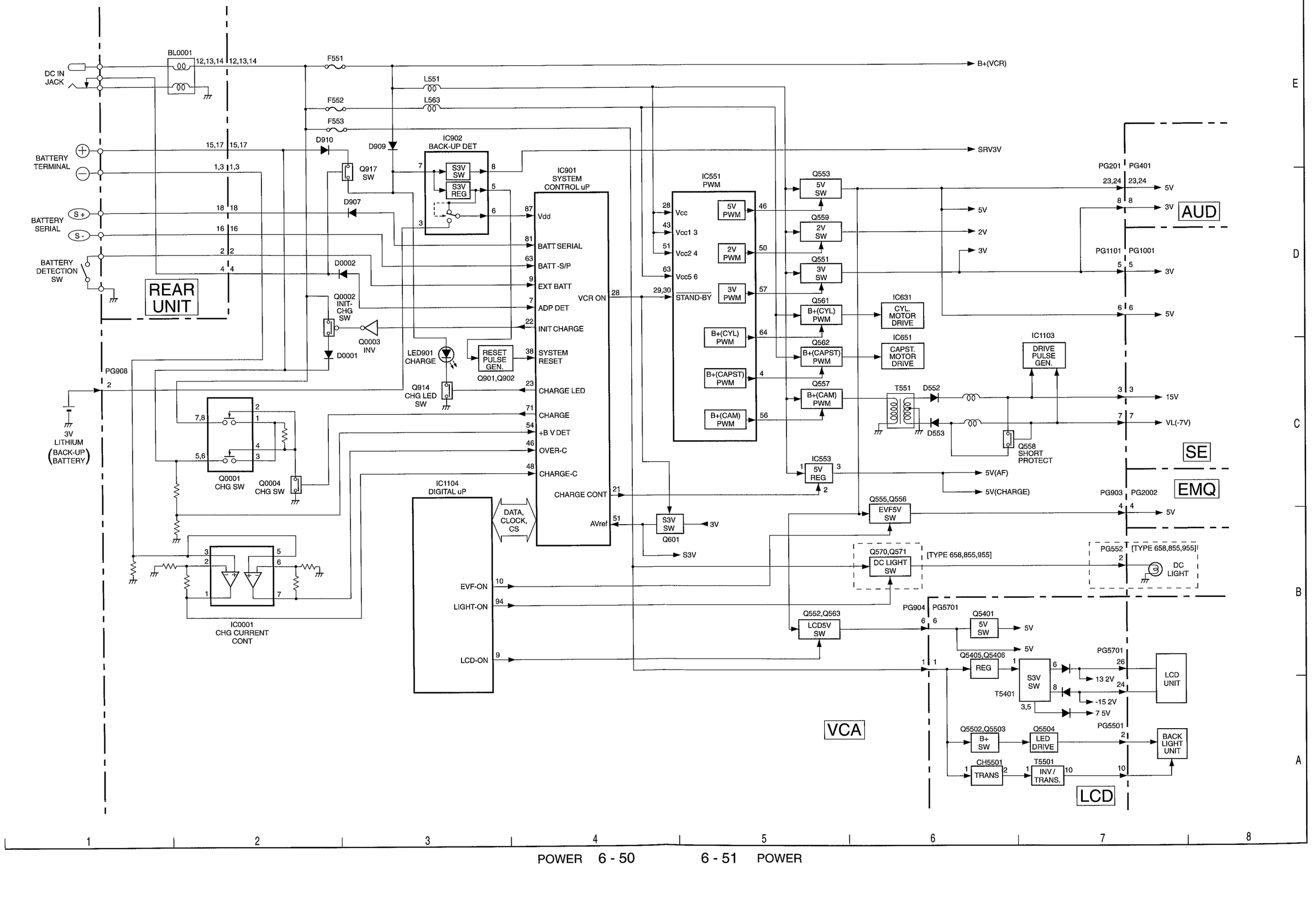
BLOCK DIAGRAMS
1. OVERALL



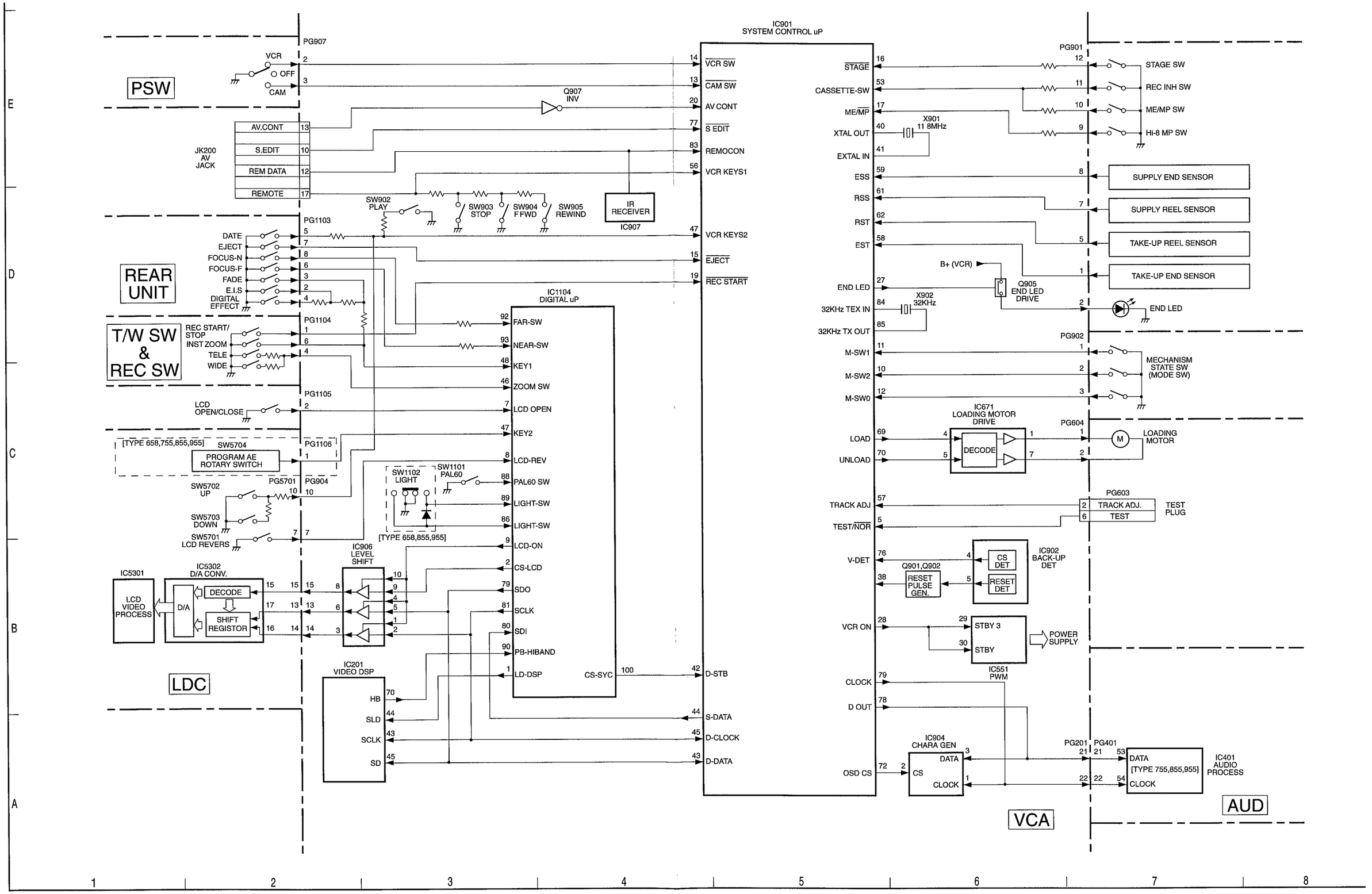
2. CAMERA

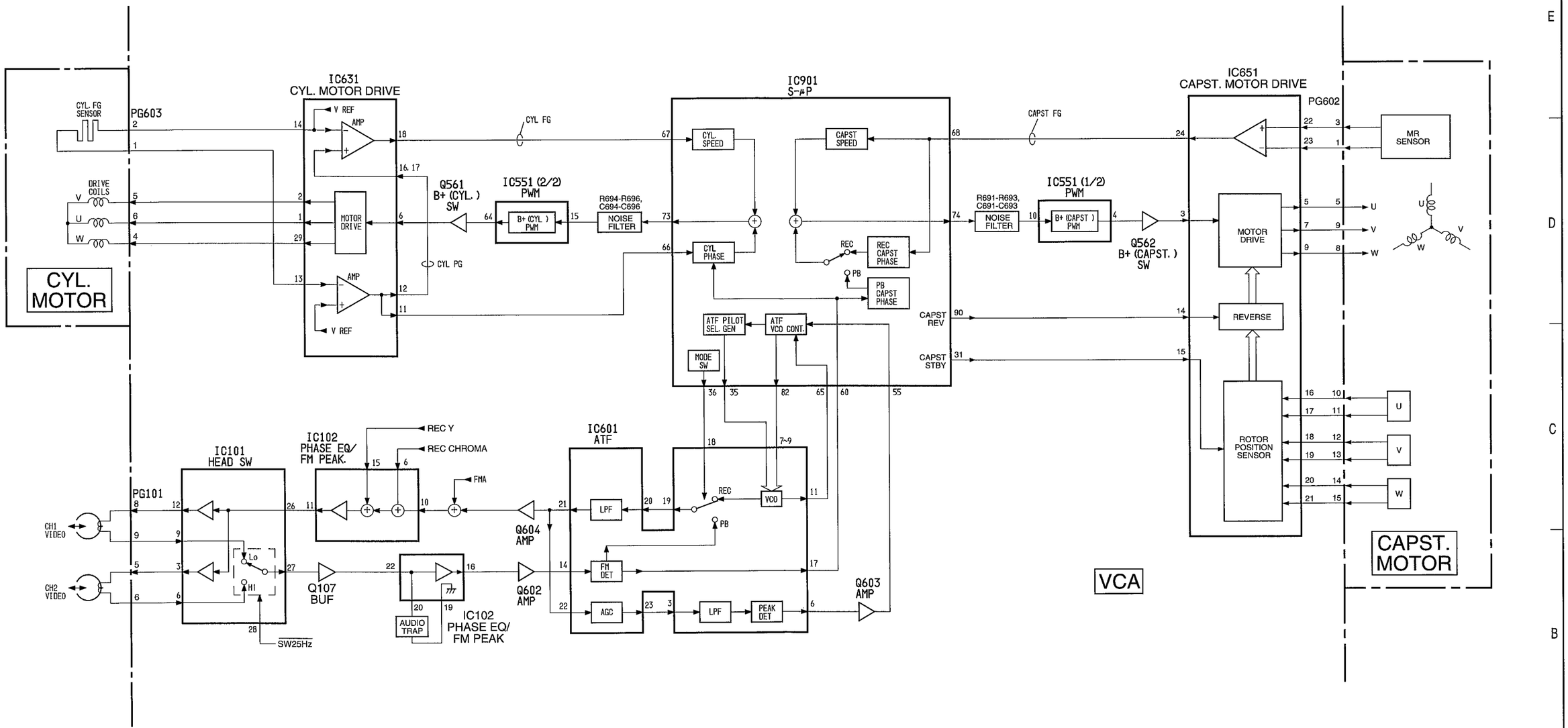

SE
IC1001 CCD SENSOR
Q1001 BUF
PG1001
PG1101
IC1101 CDS/AGC & A/D CONV.
CDS
AGC
A/D
IC1102 CAMERA DSP
Y PROCESS
Y ENCODE
CHROMA PROCESS
CHROMA ENCODE
WHITE BAL. DET
AUTO FOCUS DET
AUTO EXPOSURE DET
DIGITAL ZOOM CONTROL
DIGITAL Y
DIGITAL CHROMA
DICK NRYBY
VIDEO SIGNAL PROCESS CIRCUIT
VIDEO
IC2001
VIDEO AMP, VERT./HORIZ DEFLECTION
CRT
PG2002
EMQ
LCD
IC1103 DRIVE PULSE GEN.
VERT. DRIVE
PULSE GEN.
IC1105 EEP-ROM
[TYPE 555,658,755,855,955]
IC1403 (1/2)
GYRO AMP
IC1401
GYRO (VERT)
Q1402(1/2) RESET SW
Q1401 INV
IC1403(2/2)
IC1402
GYRO (HORIZ)
Q1402(2/2) RESET SW
NFB
HD,FP, EP2,FV
CLOCK, DATA,CS
V-GYRO
GYRO RESET
H-GYRO
IRIS PWM
TEMP-ADJ
SYS RESET
CS-SYC
LD-DSP
CS-EE
IC901 SYSTEM CONTROL μP (S-μP)
VDSP RST
CAM RESET
D-STB
EJECT
VCR KEYS2
REC START
IC906
LEVEL SHIFTER
DATA,CLOCK CS
LCD ON
CS
IC5301
LCD VIDEO PROCESS
LCD Y/CHROMA
R,G,B
PG5701
PG5702
D/A CONV
IC5302
LCD DRIVE
IC5601
LCD
SW5701 LCD REVERS
Q5612, Q5613
SW5704 PROGRAM AE ROTARY SWITCH
FULL AUTO
SPORTS
PROTRAIT
SPOTS LIGHT
BLC
GAIN UP
P1
P2
PG1106
PG5703
[TYPE 658,755,855,955]
IRIS MOTOR
IRIS DRIVE
Q1202
Q1203
HALL DEVICE
IC1201 F. DET./ IRIS DRIVE
V REF
F. DET
BIAS
BIAS DRIVE
Q1201
D1301
HALL-ADJ 1
F DET
HALL-GAIN
HALL-ADJ 0
ZOOM MOTOR
AUTO FOCUS
DRIVE
CONT
ZD PWM A
ZDOEB
ZD PWM B
RD PWM A
FOOEB
RD PWM B
IC1301 ZOOM MOTOR/ FOCUS MOTOR DRIVE
FOCUS SENSOR
FOCUS LED
ZOOM SENSOR
ZOOM LED
Q1301 LED DRIVE
IC1104 DIGITAL μP (D-μP)
LCD-ON
CS-LCD
Hi-BAND
LCD-REV
EVF ON
KEY2
REM-IR
SD
RD
LCD PAL60-ON
PAL60 SW
SW1101 PAL60
SW1102 LIGHT
LIGHT-SW
FAR-SW
NEAR-SW
LCD OPEN
KEY1
TALLY LED
Q915 TALLY SW
LED902 TALLY
ZOOM SW
JK200 AV JACK
REM DATA
SD
RD
PG1105
LCD OPEN/CLOCE
PG1103
EJECT
DATE
FOCUS-N
FOCUS-F
FADE
E I S
DIGITAL EFFECT
PG1104
INST ZOOM
REC START/STOP
TELE
WIDE
REAR UNIT
T/W SW & REC SW
VCA

3. POWER

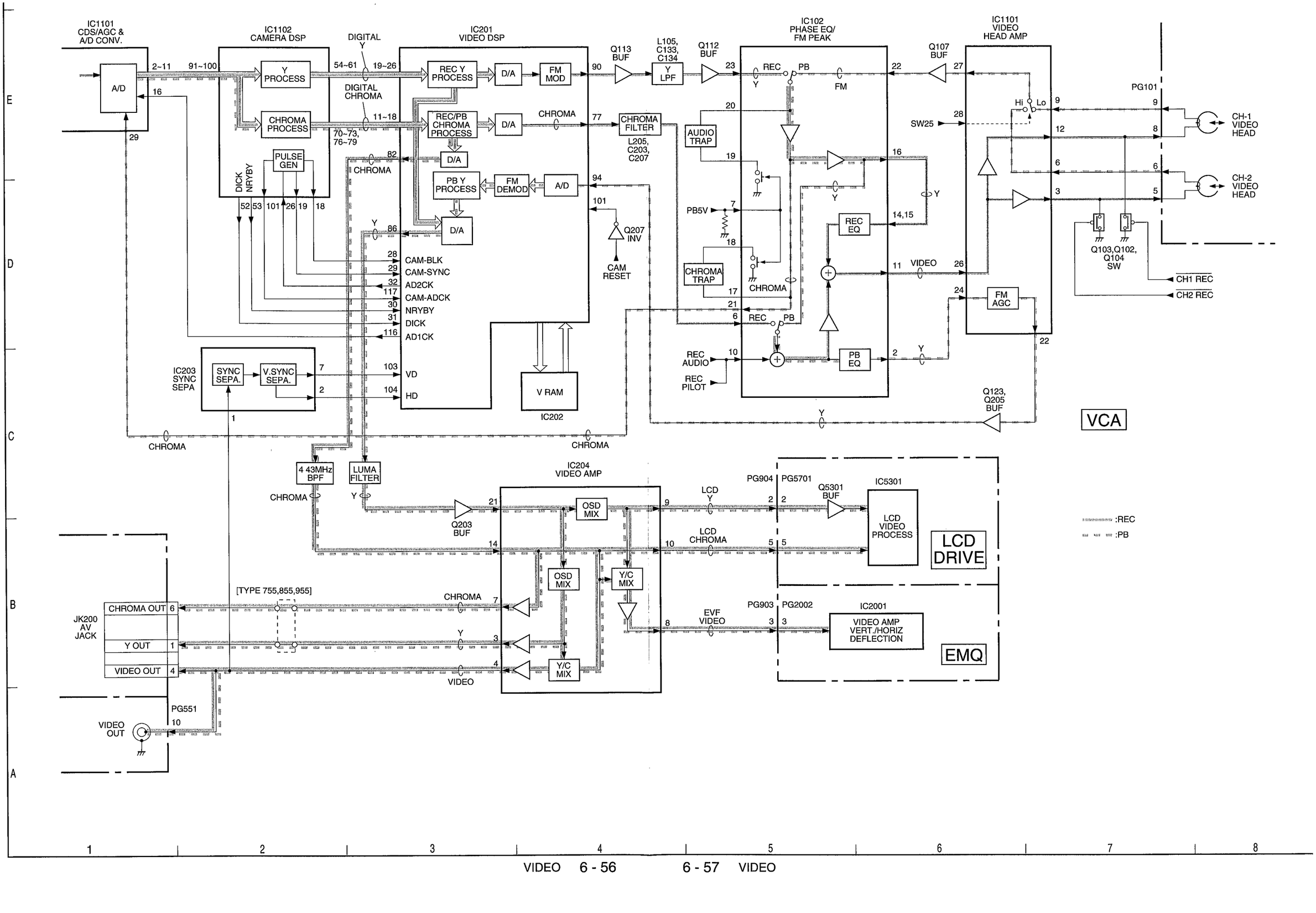

BL0001
DC IN JACK
12,13,14 12,13,14
F551
B+(VCR)
L551
F552
L563
F553
SRV3V
D910
D909
IC902
BACK-UP DET
S3V SW
S3V REG
Q917 SW
15,17 15,17
1,3 1,3
BATTERY TERMINAL
D907
18 18
16 16
2 2
4 4
BATTERY SERIAL
BATTERY DETECTION SW
REAR UNIT
D0002
Q0002 INIT-CHG SW
Q0003 INV
D0001
IC901
SYSTEM CONTROL uP
Vdd
BATT SERIAL
BATT -S/P
EXT BATT
ADP DET
INIT CHARGE
VCR ON
SYSTEM RESET
CHARGE LED
CHARGE
+B V DET
OVER-C
CHARGE-C
CHARGE CONT
AVref
LED901 CHARGE
RESET PULSE GEN.
Q901,Q902
Q914 CHG LED SW
PG908
3V LITHIUM (BACK-UP BATTERY)
Q0001 CHG SW
Q0004 CHG SW
IC0001 CHG CURRENT CONT
IC1104 DIGITAL uP
DATA, CLOCK, CS
EVF-ON
LIGHT-ON
LCD-ON
IC551 PWM
Vcc
Vcc1 3
Vcc2 4
Vcc5 6
STAND-BY
5V PWM
2V PWM
3V PWM
B+(CYL) PWM
B+(CAPST) PWM
B+(CAM) PWM
Q553 5V SW
Q559 2V SW
Q551 3V SW
Q561 B+(CYL) PWM
Q562 B+(CAPST) PWM
Q557 B+(CAM) PWM
IC631 CYL. MOTOR DRIVE
IC651 CAPST. MOTOR DRIVE
T551
D552
D553
IC1103 DRIVE PULSE GEN.
Q558 SHORT PROTECT
IC553 5V REG
5V(AF)
5V(CHARGE)
Q555,Q556 EVF5V SW
Q570,Q571 DC LIGHT SW
[TYPE 658,855,955]
DC LIGHT
Q552,Q563 LCD5V SW
Q601
S3V
PG201 PG401
PG1101 PG1001
PG903 PG2002
PG552
PG904 PG5701
PG5701
Q5401 5V SW
Q5405,Q5406 REG
T5401
S3V SW
13 2V
-15 2V
7 5V
LCD UNIT
Q5502,Q5503 B+ SW
Q5504 LED DRIVE
BACK LIGHT UNIT
CH5501 TRANS
T5501 INV / TRANS.
AUD
SE
EMQ
LCD
VCA

4. SYSTEM CONTROL

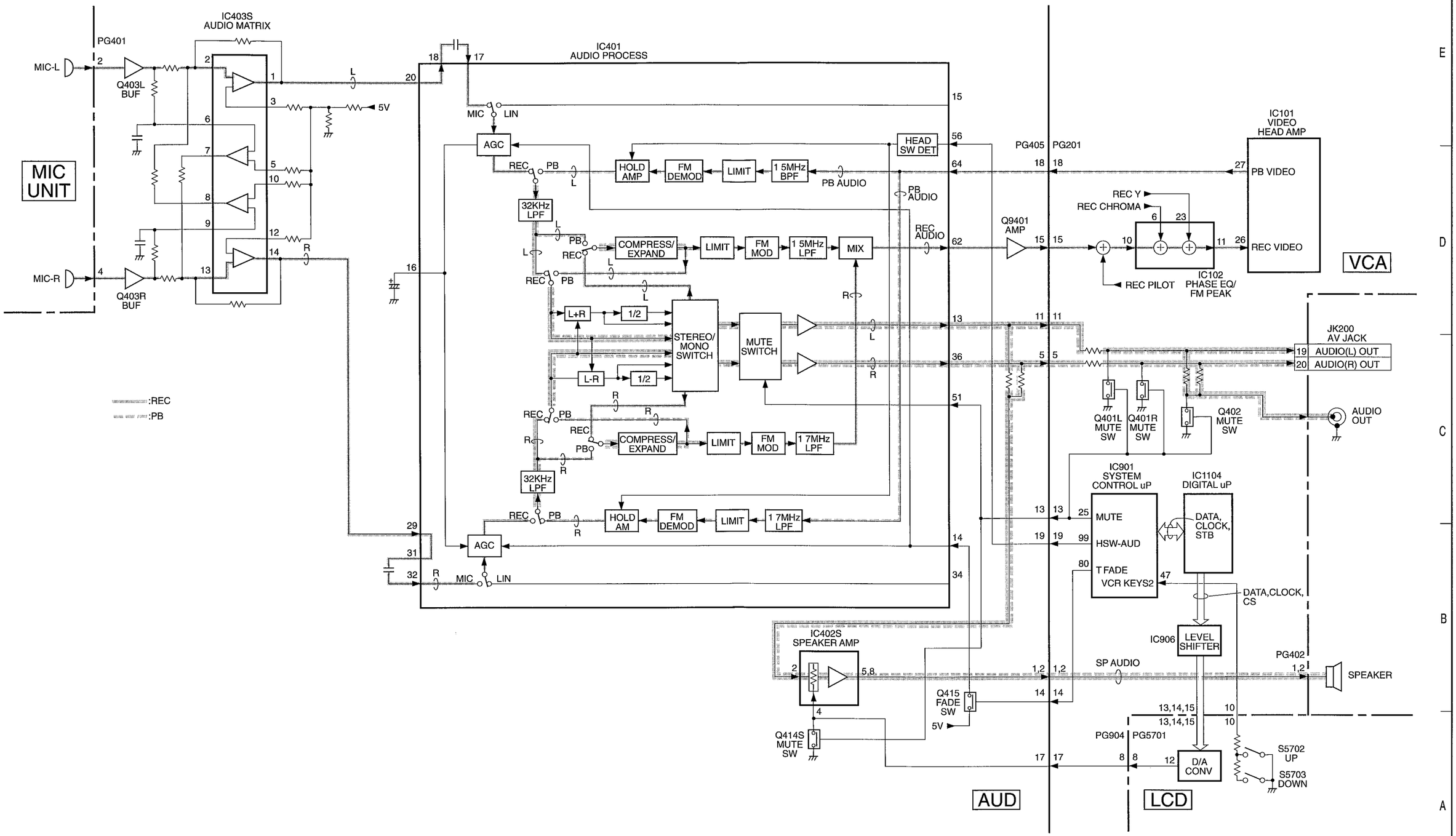



CYL. MOTOR
CYL. FG SENSOR
PG603
DRIVE COILS
V
U
W
IC631
CYL. MOTOR DRIVE
V REF
AMP
MOTOR DRIVE
CYL PG
Q561
B+ (CYL.)
SW
IC551 (2/2)
PWM
B+ (CYL) PWM
R694-R696,
C694-C696
NOISE FILTER
CYL FG
IC901
S-μP
CYL. SPEED
CYL PHASE
CAPST SPEED
REC
REC CAPST PHASE
PB
PB CAPST PHASE
ATF PILOT SEL. GEN
ATF VCO CONT.
MODE SW
CAPST REV
CAPST STBY
CAPST FG
R691-R693,
C691-C693
IC551 (1/2)
PWM
B+ (CAPST) PWM
Q562
B+ (CAPST.)
SW
IC651
CAPST. MOTOR DRIVE
PG602
MR SENSOR
REVERSE
ROTOR POSITION SENSOR
CAPST. MOTOR
VCA
IC101
HEAD SW
PG101
CH1 VIDEO
CH2 VIDEO
Lo
HI
SW25Hz
Q107
BUF
IC102
PHASE EQ/
FM PEAK.
REC Y
REC CHROMA
FMA
AUDIO TRAP
IC102
PHASE EQ/
FM PEAK
Q604
AMP
Q602
AMP
IC601
ATF
LPF
REC
VCO
PB
FM DET
AGC
LPF
PEAK DET
Q603
AMP

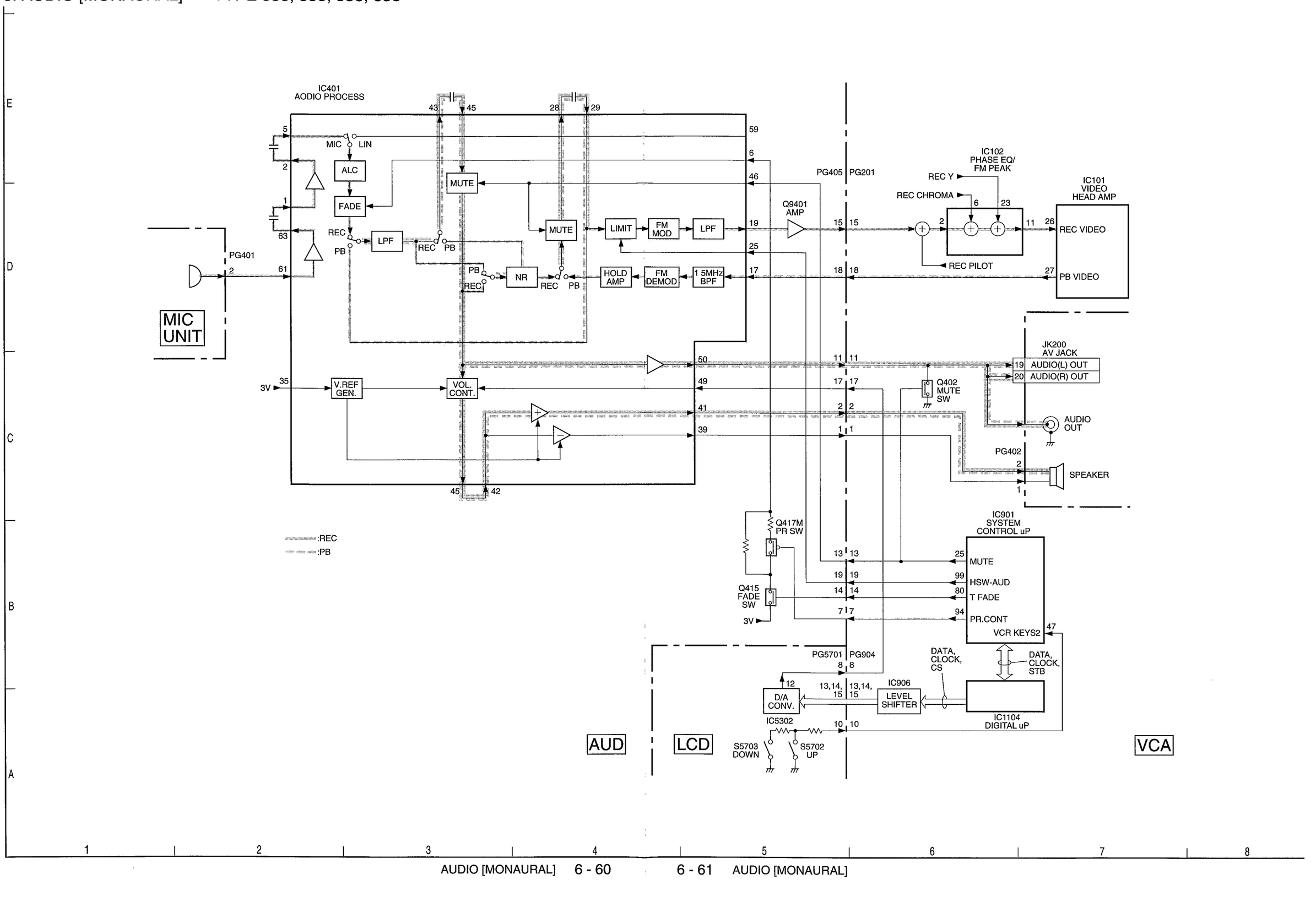
6. VIDEO


IC1101
CDS/AGC &
A/D CONV.
A/D
2~11
91~100
16
29
IC1102
CAMERA DSP
Y
PROCESS
CHROMA
PROCESS
PULSE
GEN
DICK
NRYBY
52 53 101 26 19 18
DIGITAL
Y
54~61
19~26
DIGITAL
CHROMA
11~18
70~73,
76~79
IC201
VIDEO DSP
REC Y
PROCESS
D/A
FM
MOD
REC/PB
CHROMA
PROCESS
PB Y
PROCESS
FM
DEMOD
82
CHROMA
86
Y
28 CAM-BLK
29 CAM-SYNC
32 AD2CK
117 CAM-ADCK
30 NRYBY
31 DICK
116 AD1CK
IC203
SYNC
SEPA
SYNC
SEPA.
V.SYNC
SEPA.
7
2
1
103 VD
104 HD
V RAM
IC202
CHROMA
CHROMA
4.43MHz
BPF
LUMA
FILTER
CHROMA
Y
IC204
VIDEO AMP
Q203
BUF
21
14
OSD
MIX
OSD
MIX
Y/C
MIX
Y/C
MIX
CHROMA
7
Y
3
VIDEO
4
[TYPE 755,855,955]
JK200
AV
JACK
CHROMA OUT 6
Y OUT 1
VIDEO OUT 4
PG551
10
VIDEO
OUT
90
Q113
BUF
L105,
C133,
C134
Y
LPF
Q112
BUF
23
77
CHROMA
FILTER
L205,
C203,
C207
94
101
Q207
INV
CAM
RESET
IC102
PHASE EQ/
FM PEAK
REC
PB
Y
FM
20
AUDIO
TRAP
19
PB5V
7
18
CHROMA
TRAP
CHROMA
17
21
6
REC
PB
REC
AUDIO
10
REC
PILOT
REC
EQ
PB
EQ
22
Q107
BUF
27
IC1101
VIDEO
HEAD AMP
Hi
Lo
28
SW25
16
Y
14,15
Y
11
VIDEO
26
24
FM
AGC
22
2
Y
PG101
9
12
6
3
9
8
6
5
CH-1
VIDEO
HEAD
CH-2
VIDEO
HEAD
Q103,Q102,
Q104
SW
CH1 REC
CH2 REC
Y
Q123,
Q205
BUF
VCA
LCD
Y
LCD
CHROMA
9
10
PG904
PG5701
2
2
5
5
Q5301
BUF
IC5301
LCD
VIDEO
PROCESS
LCD
DRIVE
EVF
VIDEO
8
PG903
PG2002
3
3
IC2001
VIDEO AMP
VERT./HORIZ
DEFLECTION
EMQ
:REC
:PB
A
B
C
D
E
1
2
3
4
5
6
7
8

7. AUDIO [STEREO] – TYPE 755, 855, 955 –



8. AUDIO [MONAURAL] – TYPE 553, 555, 558, 658 –



MICROPROCESSOR PIN FUNCTION TABLES

1. Digital Microprocessor (IC1104: D-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	O	(Pulse)	LD-DSP	Activates data communications with IC1102 (DSP) and IC201 (VIDEO DSP).
2	O	(Pulse)	CS-LCD	Activates data communications with IC5302 (D/A CONV.) via IC906 (LEVEL SHIFT).
3	-----	-----	CS-VAP	Not used. Open.
4	O	Hi	GYRO-RST	Drives Q1402 (GYRO RESET) via Q1401 (INV.) to reset IC1401 (GYRO VERT.) and IC1402 (GYRO HORIZ.).
5	-----	-----	----------	Not used.
6	-----	-----	CHARGE	Not used. Open.
7	I	Lo	LCD-OPEN	Input to discriminate whether of LCD monitor is opened or closed. Hi: Close, Lo: Open.
8	I	Hi/Lo	LCD-REV	Input to discriminate whether of LCD monitor is turned over.
9	O	Hi	LCD-ON	LCD power control output. Outputs "Hi" when power is turned on.
10	O	Hi	EVF-ON	Electronic viewfinder (EVF) power control output. Outputs "Hi" when power is turned on.
11	O	Hi/Lo	PAL60-ON	Output to select the mode of the output video signal (NTSC or PAL 60).
12	-----	-----	VCC	3V power input.
13	-----	-----	----------	Not used. Open.
14	-----	-----	GND	Ground.
15	-----	-----	CLOSS-U	Not used. Open.
16	-----	-----	CLOSS-D	
17	-----	-----	CLOSS-L	
18	-----	-----	CLOSS-R	
19	-----	-----	ENTER	
20	-----	-----	----------	
21	-----	-----	----------	
22	-----	(Pulse)	IRIS PWM	Iris motor drive output .
23	-----	-----	----------	Not used. Open.
24	-----	-----	----------	
25	-----	-----	CHECK8	
26	O	Hi	TALLY	Drives Q915 (TALLY SW) to turn LED902 (TALLY) on during recording.
27	-----	-----	----------	Not used. Open.
28	O	Hi	CAM-FADE	Rapid video (camera output) signal fading output. Outputs "Hi" when fading is started to fade the video signal.
29	-----	-----	----------	Not used. Open.
30	O	(Pulse)	ZDOEB	Activates zoom drive data communications with IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
31	O	(Pulse)	FOOEB	Activates focus drive data communications with IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
32	O	(Pulse)	ZOOM-LED	Output pulses to drive the ZOOM LED in the lens block.
33	O	(Pulse)	FCUS-LED	Output pulses to drive the FOCUS LED in the lens block.
34	O	PWM	ZD-PWMB	Outputs zoom motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
35	O	PWM	ZD-PWMA	
36	O	PWM	RD-PWMB	Outputs focus motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
37	O	PWM	RD-PWMA	
38	I	(Pulse)	FV	Receives the vertical sync pulses that detect the iris detection area, from IC1102 (DSP).
39	-----	-----	----------	Not used. Open.
40	I	(Pulse)	REM-IR	Remote operation signal input from the AV Jack (pin 12 of JK200)
41	I	(Pulse)	HD	Horizontal sync input.
42	-----	-----	GND	Ground.
43	O	0V-5V	HAL-ADJ.1	Controls the offset voltage of IC1201 (F.DET/IRIS DRIVE).
44	O	0V-5V	HAL-ADJ0	Drives bias generator in IC1201 (F.DET/IRIS DRIVE) via Q1201 (BUF) to control the bias voltage of the Hall devices.
45	-----	-----	----------	Not used. Open.
46	I	0V-5V	ZOOM-SW	Zoom (TELE/WIDE) switch detection inputs.

Pin No.	I/O	Active Level	Abbreviation	Function
47	I	0V-3V	KEY2	Operation switch detection input from SW5704 (Program AE Rotary Switch).
48	I	0V-3V	KEY1	Operation switch detection input (EIS, Fade, Digital Effect, Inst. Zoom).
49	I	0V-3V	TEMP-ADJ	Temperature change detection input. Detects variations in the forward voltage at the connected diode to correct the back-focus.
50	I	0V-3V	V-GYRO	Receives vertical camera shake correction data from IC1401 (GYRO VERT.) via IC1403 (GYRO AMP).
51	I	0V-3V	H-GYRO	Receives horizontal camera shake correction data from IC1402 (GYRO HORIZ.) via IC1403 (GYRO AMP).
52	-----	0V-3V	FDET	F-value detection input. Receives the F.DET voltage detected by IC1201 (F.DET/ IRIS DRIVE) and compares this with the reference voltage input via pin 77 to detect the F-value.
53	-----	-----	AVCC	A/D reference voltage input (connected to 3V power supply).
54	-----	-----	AVCC	3V power input.
55	-----	-----	VCC	3V power input.
56	-----	-----	VCC	
57	-----	-----	----------	Not used. Open.
58	-----	-----	----------	
59	I	Lo	SYS-REST	Reset signal input from IC901 (S-μP).
60	-----	-----	VCC	3V power input.
61	-----	-----	STBY	Not used. Connected to 3V power supply.
62	-----	-----	VCC	3V power input.
63	-----	-----	----------	Not used. Open.
64	-----	-----	GND	Ground.
65	O	(Pulse)	SYS-CLOCK	Outputs control clock pulses to IC1102 (DSP).
66	-----	-----	----------	Not used. Open.
67	-----	-----	VCC	3V power input.
68	-----	-----	----------	Not used. Connected to ground.
69	O	Hi	HALL-G	Controls the amplification (gain of Hall device) of IC1201 (F.DET/IRIS DRIVE).
70	I	(Pulse)	FOCS-SEN	Focus motor position detection input.
71	I	(Pulse)	ZOOM-SEN	Zoom motor position detection input.
72	I	(Pulse)	HD	Horizontal sync input.
73	-----	-----	SHUT-CTL	Not used. Open.
74	-----	-----	STROBE	Not used. Open.
75	I	(Pulse)	FP	Field discrimination pulse input.
76	O	(Pulse)	SD (232C)	Used for initial settings and adjustment. For data communications with personal computer.
77	I	(Pulse)	RD (232C)	
78	I	(Pulse)	EP3/AFLH	Receives pulses which discriminate the iris detection area.
79	O	(Pulse)	SDO	For data communications with IC1102 (DSP), IC1105 (EEP-ROM), IC901(S-μP), IC201 (VIDEO DSP) and IC5302 (D/A CONV.).
80	I	(Pulse)	SDI	
81	O	(Pulse)	SCLK	
82	-----	-----	----------	Not used. Open.
83	-----	-----	----------	
84	-----	-----	----------	
85	-----	-----	----------	
86	I	Hi/Lo	LIGHT-SW	LIGHT switch detection inputs. 86 Hi 89 Lo: ON 86 Hi 89 Hi: AUTO 86 Lo 89 Lo: OFF
89	I	Hi/Lo	LIGHT-SW	
87	-----	-----	----------	Not used. Open.
88	I	Lo	PAL60SW	PAL60 switch detection inputs.
90	I	Hi	PB-HIBAD	Playback mode detection input. IC1104 receives the playback mode detection signal sensed by IC201 (VIDEO DSP) and instructs IC904 (CHARA. GEN.) to generate the display signals and also transfers the operation mode data toIC201. Open for models with which only normal tapes are used.
91	-----	-----	----------	Not used. Open.
92	I	Lo	FAR-SW	Manual focus switch detection inputs.
93	I	Lo	NEAR-SW	

Pin No.	I/O	Active Level	Abbreviation	Function
94	I	Hi	LIGHT-ON	Light power control output. Outputs "Hi" when power is turned on.
95	-----	-----	ACTIVE	Not used. Open.
96	O	(Pulse)	CLK-CDS	Transfer data to IC1101 (CDS/AGC & A/D CONV.).
97	O	(Pulse)	SDO-CDS	
98	O	(Pulse)	CS-CDS	Activates data communications with IC1101 (CDS/AGC & A/D CONV.).
99	O	(Pulse)	CS-EE	Activates data communications with IC1105 (EEP-ROM).
100	O	(Pulse)	CS-SYS	Activates data communications with IC901 (S-µP).

2. System Control Microprocessor (IC901: S-µP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	O	Lo	CH2. REC[Lo]	Output the signals to select the video heads for recording.
2	O	Lo	CH1. REC[Lo]	Go "Lo" in the corresponding channel period during recording.
3	O	(Pulse)	SW30[Lo]	Antiphase head switching pulse output.
4	O	(Pulse)	SW30(SW25)	Head switching pulse output.
5	I	Hi	TEST/NOR[Lo]	Test program start detection input. A test program is executed when "Hi" is input.
6	-----	-----	----------	Not used. Open.
7	I	Hi	ADP DET	AC adapter connection detection input.
8	I	3V	PRE-V	Not used.
9	I	Lo	EXT BATT	Battery attachment detection input.
10	I	0V-3V	M-SW2	Mechanism state switch position (mode) detection input.
11	I	0V-3V	M-SW1	
12	I	0V-3V	M-SW0	
13	I	Lo	CAM SW[Lo]	Power switch detection input. "Lo" is input during recording (camera mode).
14	I	Lo	VCR SW[Lo]	Power switch detection input. "Lo" is input during playback (VCR mode).
15	I	Lo	EJECT SW[Lo]	Eject switch detection input. When "Lo" is input, the camera/recorder performs the eject operation even when the power is turned off (standby release input).
16	I	Lo	STAGE[Lo]	Cassette holder open/close detection input. "Lo" is input when the cassette holder is closed.
17	I	Hi/Lo	ME/MP[Lo]	Input to discriminate the type of tape. Hi: ME (metal evaporated) tape, Lo: MP (metal particle) tape.
18	I	Lo	WAKE UP[Lo]	Standby release input. When the camera power is turned on, "Lo" is input to release the standby mode. IC901 detects the inputs of each switch to start operation.
19	I	Lo	REC START[Lo]	Recording start/stop switch detection input.
20	I	Lo	AV CONT	Input to detect whether an external AV signal is input or not. "Lo" is input when an AV input cable is connected to the AV input/output connector (JK200: AV JACK).
21	O	Hi	CHARGE CONT	Controls IC553 (AF5V GEN.) to generate autofocus power supply (AF) 5V and charge circuit power supply (CHARGE) 5V.
22	O	Hi	INIT CHARGE	Charge mode control output. Outputs "Hi" when the voltage of the attached battery is 5.8V or less, to set the camcorder to the initial charge mode.
23	O	Hi	CHARGE LED	Outputs "Hi" during charging to control Q914 (CHG LED SW) so that the CHARGE LED (LED901) lights.
24	-----	-----	CHG-PROT	Not used.
25	O	Hi	MUTE	Audio muting output. Outputs "Hi" to mute sound.
26	O	Hi/Lo	CAM[Lo]/LINE	Video processor mode control output. Outputs "Lo" during camera recording and "Hi" with an external (line) signal.
27	O	(Pulse)	END LED	End LED drive output. Outputs pulses of approx. 50Hz when power is turned on.
28	O	Hi	VCR ON	Power control output. Outputs "Hi" when power is turned on.

Pin No.	I/O	Active Level	Abbreviation	Function
29	O	Lo	OSD RESET [Lo]	Outputs "Lo" with power on and is set to open with power off to initialize IC904 (CHARA. GEN.).
30	O	(Pulse)	CEVF-CS	Not used.
31	O	Hi	C.STANDBY	Capstan motor power control output.
32	-----	-----	----------	Not used. Open.
33	O	Hi	VDSP-RST	IC201 (VIEDO DSP) power supply control output. Outputs "Lo" when power is turned on and "Hi" when power is turned off to initialize IC201 (VIDEO DSP).
34	O	Lo	CAM RESET [Lo]	Camera block power supply control output. Outputs "Hi" when power is turned on and "Lo" when power is turned off to initialize the camera block (IC1104: D-μP).
35	O	Hi/Lo	f4SEL	Auto track finding (ATF) pilot signal select output.
36	O	Hi/Lo	TRK. MOD	Output to select the pilot signal from IC601 (ATF). Hi: VCO output, Lo: Playback (PB) FM signal
37	-----	-----	GND	Grounded.
38	I	Lo	SYSTEM RESET[Lo]	Microprocessor reset input. "Lo" input resets the microprocessor.
39	-----	-----	GND	Grounded.
40	O	(Pulse)	XTAL OUT 12MHz	Drive X901 to generate 12MHz main clock pulses.
41	I	(Pulse)	EXTAL IN 12MHz	
42	I	(Pulse)	D-STB(DSP)	For data communications with IC1104 (D-μP) and IC201 (VIDEO DSP).
43	I	(Pulse)	D-DATA(DSP)	
44	O	(Pulse)	S-DATA(DSP)	
45	I	(Pulse)	D-CLOCK(DSP)	
46	I	0V-3V	OVER C	Overcurrent detection input during charging. Changes the gain during charging to monitor the charge current.
47	I	0V-3V	VCR KEY2	VCR operation switch detection input (playback, date/title etc.).
48	I	0V-3V	CHARGE C	Charge current detection input. Monitors the charge current during charging.
49	I	0V-3V	BATTERY	Input to detect the battery remaining level.
50	-----	-----	GND	Grounded.
51	I	-----	AVref	Reference voltage input. Connect to 3V line.
52	-----	-----	AVdd	3V power input.
53	I	Hi/Lo	CASETTE-SW	Erase prevention tab and Hi-8/Normal of the casette detection input.
54	I	0V-3V	+B VDET	Battery voltage detection input. Monitors the attached battery voltage.
55	I	(Pulse)	PB PILOT	Playback pilot signal (PB PILOT) input.
56	I	0V-3V	VCR KEY1	VCR operation switch detection input (rewind, fast forward, stop) and remote control data from the AV Jack (pin 17 of JK200).
57	I	0V-3V	TRACK ADJ.	For the connection of a tracking control for adjustment. When an ATF-R jig is connected to PG601 (test plug), the variable resistor on the ATF-R jig can be used as a tracking control.
58	I	(Pulse)	EST	Take-up tape end detection input.
59	I	(Pulse)	ESS	Supply tape end detection input.
60	I	(Pulse)	PB.ENV	Playback (PB) FM signal input.
61	I	(Pulse)	RSS	Supply/take-up reel sensor inputs. Used to calculate the remaining tape and to detect reel lock.
62	I	(Pulse)	RST	
63	I	Hi/Lo	BATT-S/P	Maker of the battery detection input.
64	I	(Pulse)	C.SYNC	Composite sync signal input. The separated vertical sync signal is divided by two to generate the 1/2V.SYNC pulse which is used to control the cylinder speed during recording (reference signal).
65	I	(Pulse)	VCO IN	Receive the signal from the VCO in IC601 (ATF) to fix the frequency of the recording pilot signal (VCO's output).
82	O	(Pulse)	VCO CONT	
66	I	(Pulse)	DPG	Tach pulse input. Feedback signal that controls the recording phase of the cylinder.

Pin No.	I/O	Active Level	Abbreviation	Function
67	I	(Pulse)	DFG	Cylinder FG (CYL. FG) pulse input. Controls the cylinder speed during recording and playback.
68	I	(Pulse)	CFG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
69	O	Hi	LOAD	Loading motor drive outputs.
70	O	Hi	UNLOAD	
71	O	Hi	CHARGE	Charge circuit control output. Outputs "Hi" during charging to activate the charge circuit.
72	O	(Pulse)	OSD CS	Activates communications with IC904 (CHARA. GEN.).
73	O	PWM	D.SPEED	Cylinder servo control outputs.
74	O	PWM	C.SPEED	Capstan servo control outputs.
75	I	(Pulse)	CFG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
76	I	Lo	V-DET[Lo]	Inputs whether a battery is attached or not. "Lo" is input when the battery is detached, to shift the microprocessor to the backup mode in which the data is saved.
77	O	Lo	S.EDIT[Lo]	Table-top VCR mode control output. The operation mode of the VCR connected to JK200 (AV JACK) is controlled remotely using the pause switch.
78	O	(Pulse)	D. OUT	For data communications with IC904 (CHARA. GEN.) and IC401 (AUDIO PROCESS (For Stereo)).
80	O	Hi	T.FADE	Rapid audio fading output. Outputs "Hi" when fading is started to fade the audio signal in rapidly.
81	I	Hi/Lo	BATT SERIAL	Battery serial time detection input.
83	I	(Pulse)	REMOCON	Remote operation signal input from the infrared receiver and AV Jack (pin 12 of JK200)
84	I	(Pulse)	32MHz TEX IN	Generate 32kHz sub-clock pulses.
85	O	(Pulse)	32MHz TX OUT	
86	-----	-----	GND	Ground.
87	-----	-----	Vdd	3V power input.
88	-----	-----	----------	Not used. Connected to 5V power supply.
89	-----	-----	----------	Not used. Open.
90	O	Hi	C.REVERSE	Capstan motor reversing control output.
91	O	Hi	REC	Output to control the video processor during recording.
92	O	Hi/Lo	PB	Output to control the video processor mode. Goes "Hi" during playback.
93	O	Hi	D.STANDBY	Cylinder motor start auxiliary output. Outputs "Hi" for 50 ms when the motor is started in the forward rotation direction.
94	O	Lo	PR.CONT	Preamp activation signal. Outputs"Hi" during playback to activate the preamp.
95	O	(Pulse)	HD	Artificial H. sync signal output.
96	O	(Pulse)	ADDV+ SQUELCH	Artificial V. sync signal + video muting signal output.
97	O	Hi/Lo	16 9	Output to select the display mode (normal or 16 9 (wide vision)).
98	O	Hi/Lo	LCD-HOLD	Controls the LCD control circuit operation mode.
99	O	(Pulse)	AUDIO30(25)	Outputs switching pulses to IC401 (AUDIO PROCESS).
100	O	Hi	FE CONT	Flying erase head oscillation control output .

ENGLISH

CHAPTER 7 APPENDIX

1. SELF-DIAGNOSTIC FUNCTION

1. 1 Overview

The camera/recorder has the following self-diagnostic function.

- Occasional defect self-diagnostic function (A mode)
- Mechanical block self-diagnostic function (B mode)

Fig. 1-1 shows the self-diagnostic coverage range. The self-diagnostic functions of the camera/recorder are engaged by the system control (main) μP (IC0901) which detects, memorizes and displays data related to defects in the mechanical block control system.

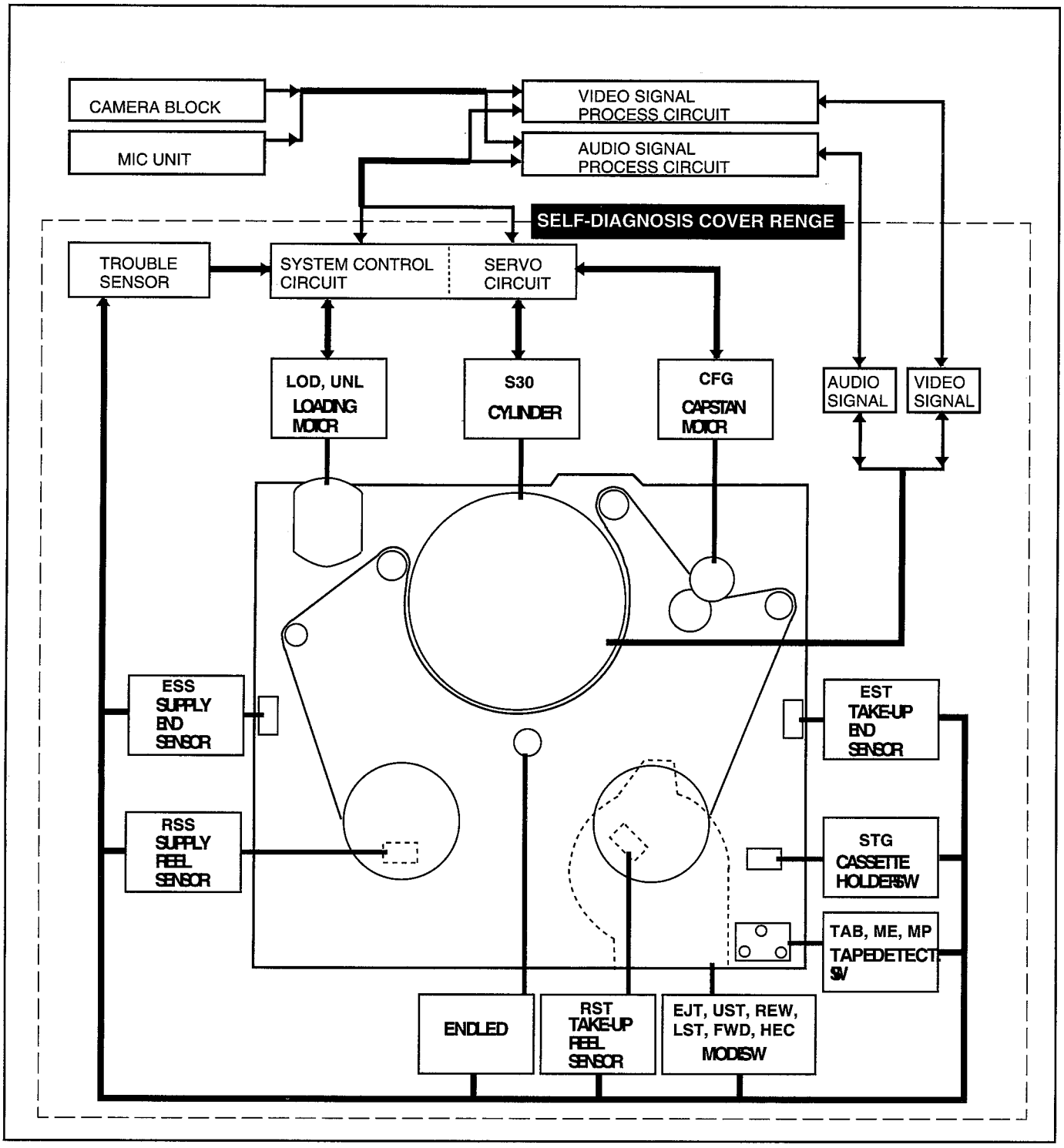


Fig. 1-1 Self-Diagnostic Coverage Range

1.2 Details of Display/Detection and Applications

Table 1-1 summarizes the details of display/detection of the self-diagnostic functions and their applications.

Fig. 1-2 shows the operational processes of the self-diagnostic functions.

Table 1-1 Details of Display/Detection of Self-Diagnostic Functions and their Applications

	Occasional defect self-diagnostic function (A mode)	**Mechanical block self-diagnostic function (B mode)**
Details of display/ detection	The system control μ P memorizes and displays the defect data. (If several defects have occurred, only the last defect detected is memorized.)	Displays the data for the defect that has occurred when the B mode is set.
Application	Used when the defective symptom is not reproduced during servicing.	Used to detect the cause of the defect (in the mechanical block or electrical circuits) and to determine the defective position of the mechanical block.
Detected parts	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG)	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG) Loading motor (LOD, UNL) Mechanism mode switch (EJT, UST, REW, LST, FWD, HEC) Tape detection switches, etc. • Erase prevention tab detection switch (TAB) • ME/MP detection switch (ME) • Hi-8 MP detection switch (MP) • Cassette holder switch (STG)
Cautions	When the rewind mode is entered, the defect data is erased.	Engage the B mode after completing the A mode. If the B mode is engaged first, the defect data may be erased.

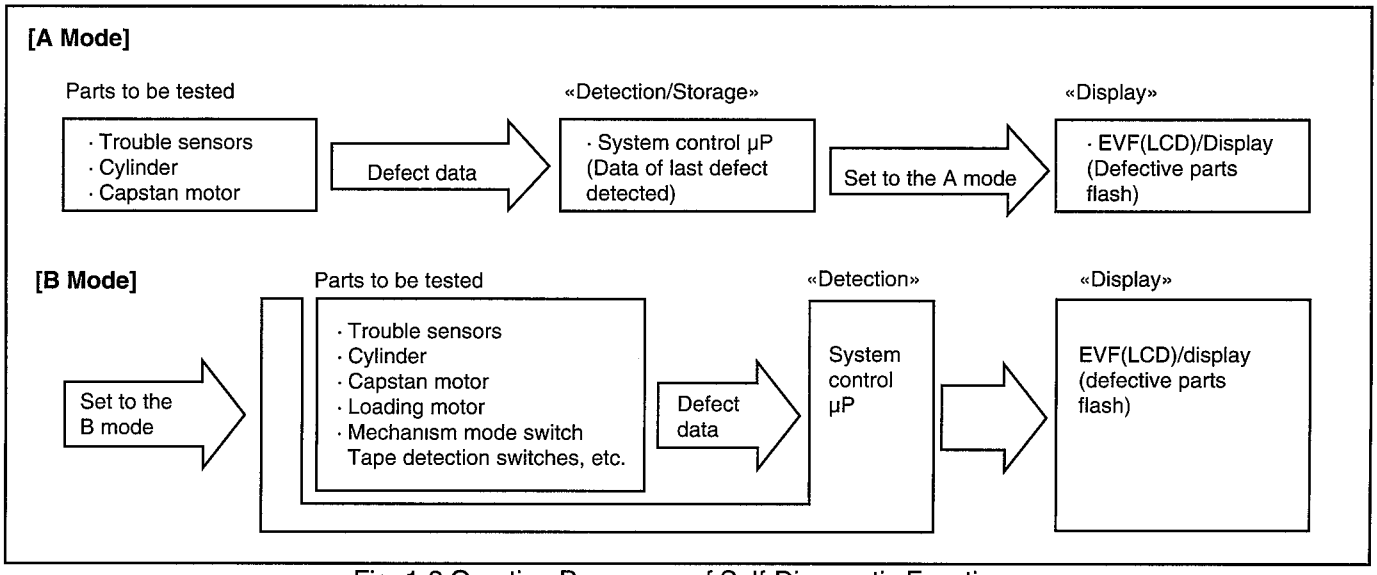


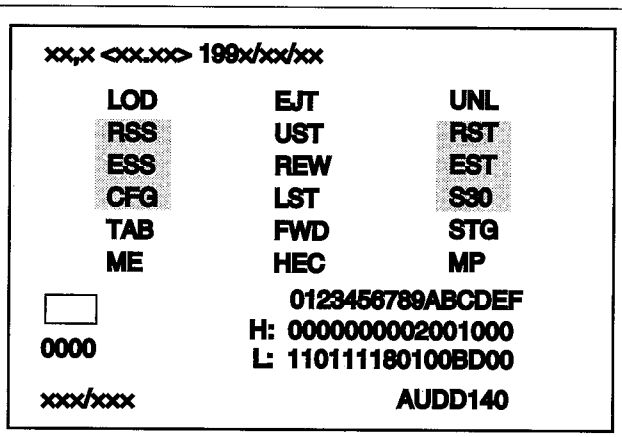
Fig. 1-2 Oeration Processes of Self-Diagnostic Functions

1.3 Setting Procedure and Details of Diagnosis

1.3.1 Occasional Defect Self-Diagnostic Function (A Mode)

(1) Setting Procedure

1) Connect (attach) a power supply (battery).
2) Set the power switch to"CAM" or "VCR".
3) Press the DATE button. [Within half a second]
4) Press the DATE and REW buttons simultaneously and hold them for 3-5 seconds.



«Results of self-diagnosis»
- The shaded items flash if they are defective.
- See Table 1-2 for the results of diagnosis.

Cautions:
- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- Only the shaded items are tested in the A mode.
- Other items are ignored.

[To release]
- Set the power switch to "OFF".
- Press the DATE and REW buttons simultaneously.

(2) Results of Diagnosis

Table 1-2 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the A mode.

Table 1-2 Details of A Mode Self-Diagnosis

Part	Display	Results of diagnosis	Parts/circuits deemed to be defective
Trouble sensors	RSS	The pulse from the supply reel sensor is defective.	Supply reel disk Trouble sensor (reel sensor) IC0901
	RST	The pulse from the take-up reel sensor is defective.	Take-up reel disk Trouble sensor (reel sensor) IC0901
	ESS	The pulse from the supply end sensor is defective.	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective.	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
Cylinder	S30	The SW30/25 (CYL. FG) pulse is defective.	Cylinder IC0631 IC0901 DC-DC converter circuit
Capstan	CFG	The CAPST. FG pulse is defective.	Capstan motor IC0651 IC0901 DC-DC converter circuit

1.3.2 Mechanical Block Self-Diagnostic Function (B Mode)

Caution: Complete the A mode before engaging the B mode.

(1) Setting Procedure

1) Connect (attach) a power supply (battery).
2) Press the EJECT button to set to the eject state.
3) Press the "Hi-8 MP" switch on the trouble sensor and the DATE button and hold them, then set the power switch to "CAM" or "VCR" (Hold this state for a few seconds.) [Within 3 seconds].
4) Close the cassette lid.

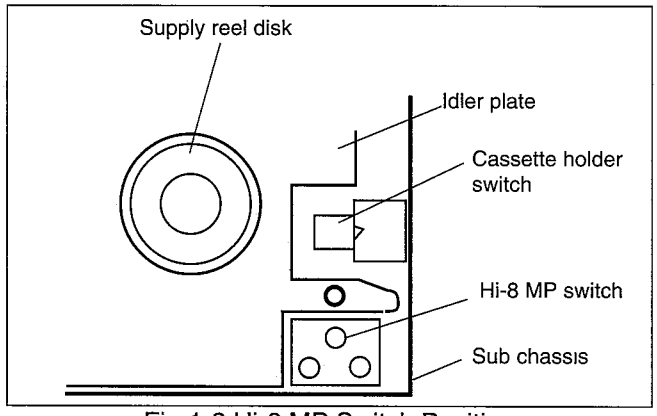
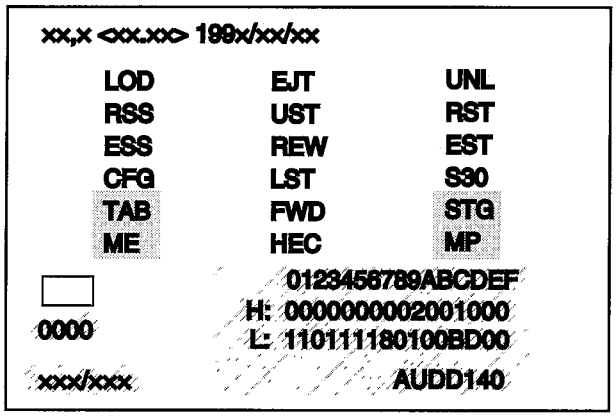


Fig.1-3 Hi-8 MP Switch Position



«Results of self-diagnosis»
- The defective items flash.
- The shaded items are the tape detection switches and cassette holder switch which flash when they are not pressed.
- See Table 1-3 for the results of diagnosis.

Cautions:
- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- The indications in dotted lines are not covered by the self-diagnostic functions.
- It is normal for the diagnostic procedure to end in the eject state. Do not close the cassette lid thereafter.

[To release]
- Set the power switch to "OFF".

5) The procedure ends in the eject state.

Caution: Do not close the cassette lid.

(2) Results of diagnosis

Table 1-3 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the B mode.

Table 1-3 Results of B Mode Self-Diagnosis (1/2)

Part	Display	Results of diagnosis (Detect display conditions)	Parts/circuits deemed to be defective
Loading motor	LOD	The loading motor is defective when running forward. (Does not load within 10 seconds.)	Loading motor Rotation of drive gears in mechanical block faulty. IC0671 IC0901 IC0902 Power supply (5V, B+) lines.
	UNL	The loading motor is defective when runnig in reverse. (Does not unload within 10 seconds.)	
Trouble sensors	RSS	The pulse from the supply reel sensor is defective. (There is one pulse or less withinte two seconds.)	Supply reel disk Trouble sensor (reel sensor) Capstan motor IC0901

Table 1-3 Results of B Mode Self-Diagnosis (2/2)

Part	Display	Results of diagnosis (Detect display conditions)	Parts/circuits deemed to be defective
Trouble sensor	RST	The pulse from the take-up reel sensor is defective. (There is one pulse or less within two seconds.)	Take-up reel disk Trouble sensor (reel sensor) Capstan motor IC0901
	ESS	The pulse from the supply end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
Tape detection switches, etc.	TAB	The erase prevention tab detection switch detects the record inhibit state (OFF).	**Caution:** These switches flash when they are not pressed. It is abnormal if they flash when pressed. Trouble sensor IC0901
	ME	The ME/MP tape detection switch detects the MP state (OFF).	
	MP	The Hi-8 MP tape detection switch detects the normal MP state (OFF).	
	STG	The cassette holder switch detects the state where the cassette holder is not lowered (OFF).	
Capstan motor	CFG	The CAPST. FG pulse is defective. (150 pulses or less within two seconds.)	Capstan motor IC0651 IC0901 DC-DC converter circuit
Cylinder	S30	The SW30/25 (CYL. FG) pulse is defective. (No pulse is input normally within two seconds.)	Cylinder IC0631 IC0901 DC-DC converter circuit
Mechanism mode switch	UST	The unloading stop position detection signal is defective.	**Caution:** The positions shown on the left are detected in the order described within 10 seconds. Mechanism mode switch Trouble sensor IC0901 Defective rotation/phase of drive gears in mechanical block. Loading motor. Tape transport components. Guide roller rails DC-DC converter circuit.
	REW	The rewind position detection signal is defective.	
	LST	The loading stop position detection signal is defective.	
	FWD	The play or fast forward position detection signal is defective.	
	HEC	Between the fast forward position and unloading stop position detection signal isdefective.	
	EJT	The eject position detection signal is defective.	

2. Demonstration (Demo) Mode

This camera/recorder has a demonstration (demo) mode function.

2.1 Setting the Demo Mode

The camera/recorder can be set to the demo mode following the procedure below:

2.1.1 Setting Conditions

1) Connect the AC adapter/charger or a fully charged battery pack.
2) Set the power switch to "OFF".
3) Do not insert a cassette.

2.1.2 Setting Procedure

Hold the PLAY button down and set thepower switch to "CAM".

Note: The camera/recorder also enters the Demo mode in the following status:
If the power switch is set to "CAM" for more than 10 minutes when the date has not been set.

2.2 Exiting the Demo Mode

Perform either of the following to finish (release) the demo mode:

1) Disconnect the AC adapter/charger or battery.
2) Insert a cassette.
3) Set the power switch to "CAM".

2.3 Operation During the Demo Mode

Cautions:

1) The following buttons and switches cannot be used in the demo mode:
   VCR system:
   PLAY, F.FWD, REW, REC START/STOP
   Camera system:
   EIS, FADE, DIGITAL EFFECT, FOCUS, INST.ZOOM
2) If the AC input cable is connected while in the demo mode, the demo mode wi ll be interrupted, and the operation mode when the cable has been connected will be maintained.
3) When the power switch is set to "VCR" during the demo mode, the demo mode will be interrupted, and the operation mode when the switch has been changed will be maintained.

2.3.1 Operation sequence

The following table shows the operation sequence in the demo mode and the display in the EVF (LCD) and on the monitor screen.

Caution:

Only functions provided with specific models will be demonstrated. (T his section describes models provided with all functions of this series of camera/recorder.)

Order	Demo mode	On-screen display	Picture	Remarks
1		No display	Continues one second.	
2		DIGITAL		Displays characters every half second.
3		DIGITAL DEMONSTRATION	(Blue back)	DEMOSNTRATION is displayed under DIGITAL
4		No display		Continues half a second.
5		DEMO		Lights for a second, and then continues to flash.
6	EIS	EIS indicator and OFF at center	Shakes noticeably in the vertical direction.	For 5 seconds
7		EIS indicator	Shaking lessens.	For 3 seconds
8		EIS indicator and OFF at center	Shakes noticeably in the horizontal direction.	For 3 seconds
9		EIS indicator	Shaking lessens.	For 5 seconds
10	INST.ZOOM	I.ZOOM indicator	INST. ZOOM is ON	For 2 seconds
11	(Instant	(DEMO flashes)	INST. ZOOM is OFF	For 2 seconds
12	Zoom)	I.ZOOM indicator	INST. ZOOM is ON	For 2 seconds
13		(DEMO flashes)	INST. ZOOM is OFF	For 2 seconds
14	FADE	White fade indicator	White fade in	The fade modes will switch sequences every demo mode cycle.
15			White fade out	
14'		Wipe fade indicator	Wipe fade in	
15'			Wipe fade out	
14'		Mosaic fade indicator	Mosaic fade in	
15'			Mosaic fade out	
14'		Art fade indicator	Art fade in	
15'			Art fade out	

Order	Demo mode	On-screen display	Picture	Remarks
14'	FADE	Zoom fade indicator	Zoom fade in	
15'			Zoom fade out	
14'		Black-and-white (B&W) fade indicator	B/W fade in	
15'			B/W fade out	
16	DIGITAL EFFECT	16 x 9 indicator	16 x 9 picture	For 1.25 seconds
17		NEGPOS indicator	Negative picture	For 1.25 seconds
18		ZM:2 indicator	Magnifies subject up to 240 times.	For 1.25 seconds
19		MIRROR indicator	Half-mirror picture	For 1.25 seconds
20		MOSAIC indicator	Mosaic picture	For 1.25 seconds
21		ART indicator	Art picture	For 1.25 seconds
22	Stored Title		The registered titles appear in sequence. [The number of titles is different for each model (destination).] (Magenta back)	For 0.3 to 1 second for each
23	Normal		Normal picture	For 3 seconds, and then goes back to step 1.

Note: Steps 1-23 will be repeated during the demo mode.

1. ADJUSTMENT POINTS ON THE MECHANISM

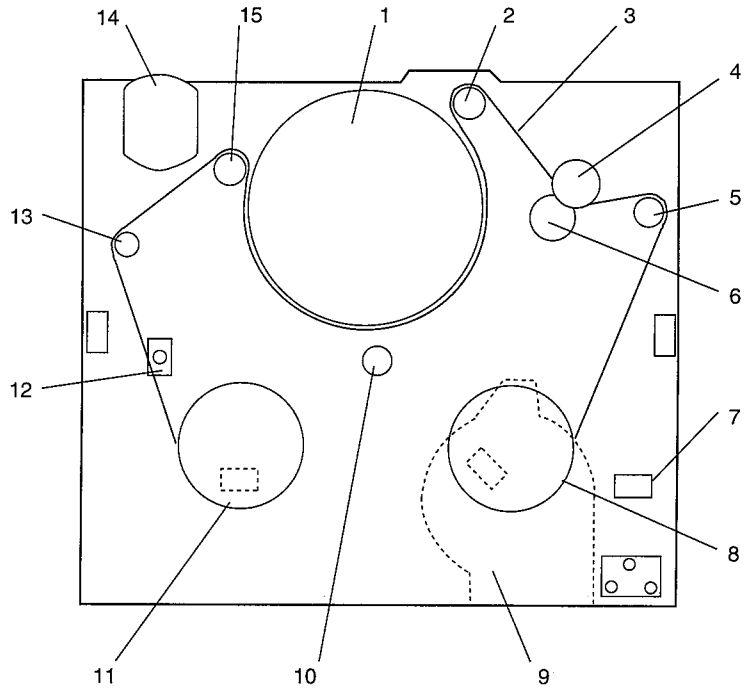


Fig. 1-1

1. Cylinder
2. Guide Roller (O) [Take-up Guide Roller]
3. Tape
4. Capstan Motor
5. OHD Arm [Pull Out Arm]
6. Pressure Arm [Pressure Roller]
7. Cassette Holder Switch
8. Take-up Reel Disk
9. Mode Switch [Mechanism State Switch]
10. End LED
11. Supply Reel Disk
12. Tension Band Holder
13. Tension Arm [Tension Pole]
14. Loading Motor
15. Guide (I) [Supply Guide]

2. BEFORE STARTING ADJUSTMENT

(1) See "CHAPTER 1 DISASSEMBLY" for dismantling and reassembling the mechanism, and matching phases of gears in assembly.

(2) The following describes the procedure for setting the mechanism to the playback mode without inserting a cassette (a circuit board that mounts mechanism drive circuits must be connected):
The playback mode cannot be kept by any of the following procedures because reel disks do not turn, etc.:
   1) Set the mechanism to the unloading stop or eject mode.
   2) Shade light from the end LEDs.
   3) Lower the cassette holder.
   4) Press the playback button.

(3) The following shows the procedure for loading and unloading the unassembled mechanism:
   1) Supply 4V DC to the terminals of loading motor:
   Red lead wire (+), brown lead wire (-): Loading
   Brown lead wire (+), red lead wire (-): Unloading

3. TAPE TRANSPORT SYSTEM CHECK/ADJUSTMENT

The tape transport system is a generic term for the path from the supply reel disk to the take-up reel disk via cylinder.

Notes: 1. The tape transport system is adjusted before shipment from the factory, so perform adjustments only when components of the transport system are replaced or adjustments of the transport system have drafted.
2. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust or oil, etc. adhering to the contact surfaces.

3.1 Tension Arm Position and Tension Torque Check (Fig. 3-1)

Notes: 1. This item is an operation check for periodic maintenance. Check the following, and only when adjustment is necessary, proceed with adjustment in next item.
2. Adjustment is unconditionally necessary after replacing the tension arm, tension band or tension arm spring. Proceed with adjustment in next item.

■ **Test Equipment/Jig**

Cassette Torque Meter
(NTSC: SRK-8T-112, PAL: SRK-8T-212)

■ **Procedure**

(1) Make sure that the tension arm spring is hooked onto hook (b) on the subchassis. (Fig. 3-1)
(2) Set the camcorder to the playback mode without inserting a cassette. (See the previous page.)

[Check item 1]

(3) After setting to the rewind mode, set the camcorder to the playback mode. Make sure that the tension arm moves in the direction of arrow (B).

[Check item 2]

(4) Insert the cassette torque meter, set to the playback mode, and make sure that the value on the supply side is 8-10 gf.cm.
(5) Proceed with adjustment in next item only when the check items are not satisfied.

3.2 Tension Arm Position and Tension Torque Adjustment (Fig. 3-1, 3-2)

Notes: 1. Be sure to perform this adjustment after replacing the tension arm, tension band or tension arm spring. When the tension arm or tension spring must be replaced, also replace the tension band.
2. Be sure to replace the tension band before performing this adjustment.

■ **Test Equipment/Jig**

Cassette Torque Meter
(NTSC: SRK-8T-112, PAL: SRK-8T-212)

■ **Adjustment Point**

Band Bracket (B)

■ **Procedure**

(1) Attach all parts. Loosen screw (E).
(2) Hook the tension arm spring onto hook (b) on the subchassis. (Fig. 3-1)
(3) Set the camcorder to the playback mode without inserting a cassette. (See the previous page.)
(4) Make sure that the tension arm fully moves in the direction of arrow (A).
(5) Check the position relationship between the tension arm and the square hole in the loading motor holder (initial position). [Fig. 3-2 (initial position)]

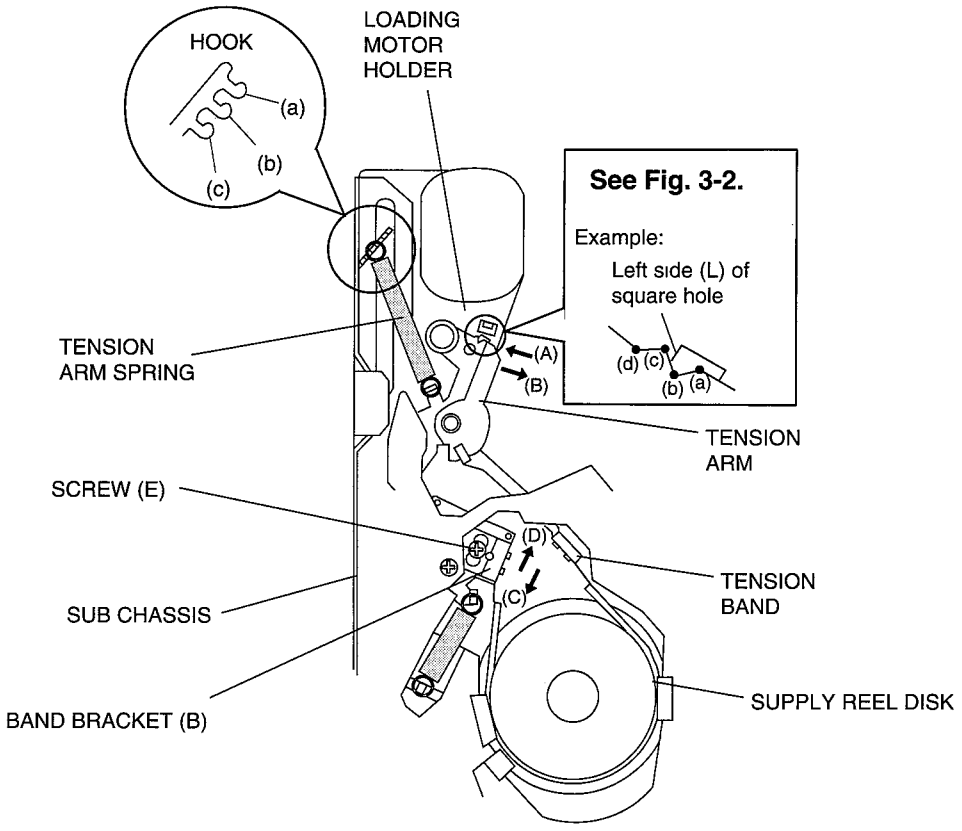


Fig. 3-1

(6) Adjust the position of band bracket B according to the initial position so that the relationship between the tension arm and the square hole in the loading motor holder is as shown in Fig. 3-2 (adjustment position).
(7) Tighten screw (E) to temporarily fix band bracket B so that it does not move.

[Check item 1]

(8) After setting to the rewind mode, set the camcorder to the playback mode. Make sure that the tension arm moves in the direction of arrow (B).

[Check item 2]

(9) Insert the cassette torque meter, set to the playback mode, and make sure that the value on the supply side is 8-10 gf.cm.
(10) If both two check items are satisfied, remove the cassette torque meter, and additionally tighten screw (E), taking care that band bracket B does not move, to complete adjustment.

Note: If both or either check item is not satisfied, proceed with the following adjustment (countermeasures):

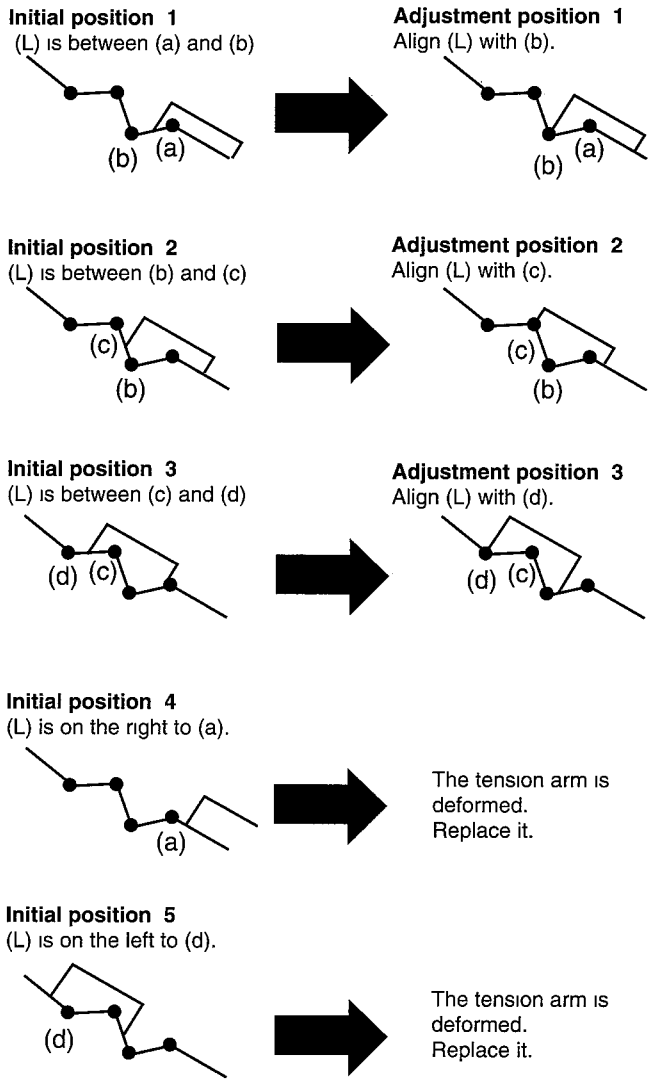


Fig. 3-2

When only check item 1 is faulty:

Fine adjust the position of band bracket B in the direction of arrow (D). Make sure of check items 1 and 2 again.

When only check item 2 is faulty:

If the torque is higher than the specified value, fine adjust the position of band bracket B in the direction of arrow (C), and then make sure of check items 1 and 2 again.

When both check items 1 and 2 are faulty:

If the torque is lower than the specified value, fine adjust the position of band bracket B in the direction of arrow (D), and then make sure of check items 1 and 2 again.

Notes: 1. If both check items 1 and 2 are not satisfied after the above countermeasures, check the tension band and tension arm spring, and if necessary, replace either or both.
2. Do not change the hooking position of the tension arm spring.

3.3 Coarse Adjustment of Guide Roller (O) and Guide (I) Heights (Fig. 3-3)

Note: Be sure to perform this adjustment after replacing the O guide roller or I guide.

■ **Test Equipment/Jig**

Sepcial Driver

■ **Adjustment Point**

Top of the Guide (I)
Top of the Guide Roller (O)

■ **Procedure**

(1) Screw in the guide roller (O) or guide (I) into each base, make surface (A) of guide roller (guide) in contact with surface (B) of base, and then loosen the guide roller (O) or guide (I) by approx. 360°.

Note: After this adjustment is completed, be sure to perform "3.4 Adjustment of Guide Roller (O) and Guide (I) Heights (Adjustment After Replacing Cylinder)".

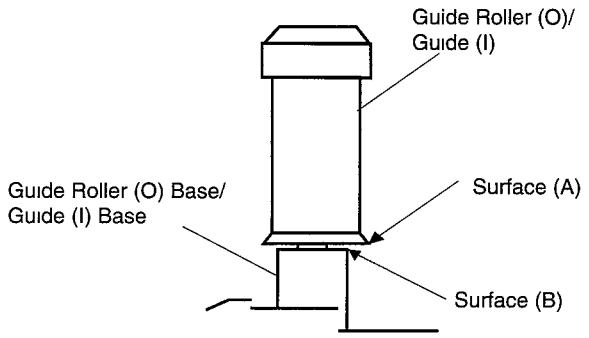


Fig. 3-3

3.4 Guide Roller (O) and Guide (I) Heights Adjustment (Adjustment After Replacing Cylinder) (Fig. 3-4 - 3-6)

Notes: 1. Be sure to perform this adjustment after replacing the guide roller (O), guide (I) or cylinder base. After replacing the guide roller (O) or guide (I), perform the coarse adjustment in the previous item in advance.
2. When the cylinder is replaced, the electric circuit adjustment is also necessary. See the service manual of this model and also perform electrical circuit adjustment.
3. Before starting adjustment, modify the ATF-R jig, referring to Fig. 3-6.

■ **Test Equipment/Jig**

Alignment Tape
ATF-R Jig
Oscilloscope
Special Driver
DVM

■ **Test Point**

TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ **Adjustment Point**

Top of the Guide (I)
Top of the Guide Roller (O)

■ **Procedure**

(1) Insert the alignment tape which has been completely rewound, and set the camcorder to the test mode by the following procedure.

[To set to the test mode]

1) Remove the power supply (adapter, battery, etc.).
2) Set the power switch to the VCR position.
3) Connect the ATF-R jig to the test terminal (test connector), supply power again with the playback button held down.

Notes: 1. If the mechanism operates (enters the playback mode) when power is supplied, it indicates that the camcorder has not been set to the test mode. Start from item 1) over.
2. The test mode is released when the power supply is removed.

(2) Connect an oscilloscope to TP3 and press the playback button.
(3) Synchronize the oscilloscope with TP1 (SW30/25).
(4) Set the oscilloscope probe to (+).

Guide (I) (Fig. 3-4)

(5) Holding down SW2 on the ATF-R jig, perform the following steps.
(6) Adjust the height of guide (I) so that the waveform is flat.
(7) Adjust the voltage control on the oscilloscope so that amplitude (a) of the waveform is set to 4 graduations.
(8) Set SW1 on the ATF-R jig to ON.
(9) Turn RT1 on the ATF-R jig, and make sure that the waveform changes while it is flat. If this cannot be confirmed, fine adjust the height of guide (I), to satisfy the condition.

Guide Roller (O) (Fig. 3-5)

(10) Set SW1 on the ATF-R jig to OFF.
(11) Set the oscilloscope probe to (-).
(12) Adjust the voltage control on the oscilloscope so that amplitude (b) of the waveform is set to 4 graduations.
(13) Turn RT1 on the ATF-R jig counterclockwise so that the voltage at section (C) (pin 2) on the ATF-R jig is 1.1 ± 0.1 V. Make sure that amplitude (b) of the waveform is set to 3 graduations.
(14) Adjust the height of guide roller (O) so that minimum amplitude (c) of the waveform is set to 2 ± 0.3 graduations.
(15) After adjusting the heights of guide (I) and guide roller (O), reinsert the alignment tape, and make sure that the contents of this adjustment are satisfied.

Note: After adjustment is completed, perform the following:
1) Remove the ATF-R jig from the test terminal (test connector), and release its modification.
2) Remove the power supply to release the test mode.
3) Make sure of adjustment items in step (7) and after of "3.5 OHD Arm Height Adjustment".

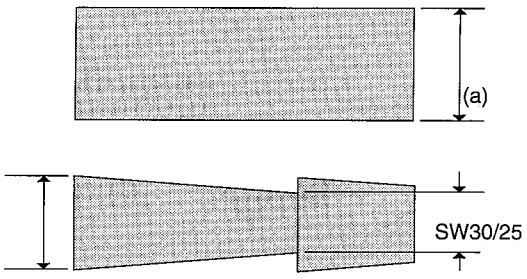


Fig.3-4

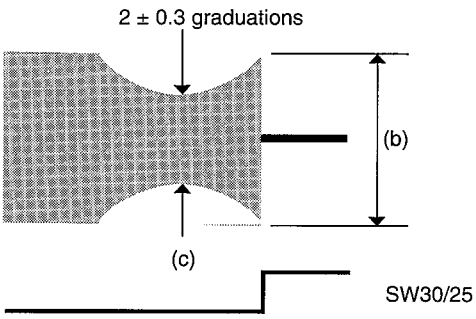
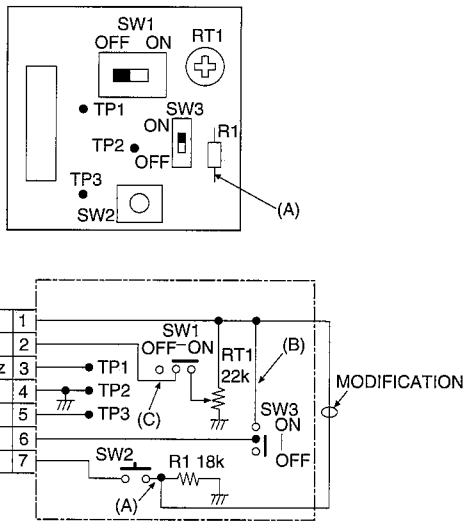


Fig.3-5



Modification: Connect terminal (A) of the resistor and pin 1 (5V).

Fig. 3-6

3.5 OHD Arm Height Adjustment (Fig. 3-7)

Notes: 1. Be sure to perform this adjustment after reinstalling the OHD arm.
2. After the heights of O guide roller/I guide are adjusted or the capstan motor is replaced, make sure of adjustment items in step (7) and after. If the contents are not satisfied, perform this adjustment from step (1).
3. This adjustment minimizes minute twisting of tape that occurs between the OHD arm and capstan motor due to the structure of mechanism.
4. It is not necessary to modify the ATF-R jig.

■ **Test Equipment/Jig**
Alignments Tape
Blank Tape
ATF-R Jig (SW1: OFF, SW3: OFF)
Special Drive
Oscilloscope
Color Monitor TV

■ **Test Point**
Video Out
TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ **State of VCR**
Connect the color monitor TV to video out.
Connect the ATF-R jig to the test terminal on the circuit board.

■ **Adjustment Point**
Top of the OHD Arm

■ **Procedure**
(1) Turn power on.
(2) Load a blank tape that has been completely rewound.
(3) Set to the forward search mode.
(4) Carefully observe the tape between the OHD arm and capstan in a bright place, and make sure that minute twisting occurs on the tape. The color of tape (reflected image) at the twisted portion will appear different from the other portions. Also, twisting will look different on the left/right and up/down depending on the direction of incident light, as shown in Fig. 3-5.
(5) Adjust the height of OHD arm so that the widest portion where color of tape looks different is less than 0.5 mm.
(6) Make sure that no curling of tape occurs at either the top or the bottom flange of OHD arm. (However, even if some curling occurs at either flange, it can be judged in the allowable range if there is no scratch on the tape and there is no gap between the other flange and tape edge.)
(7) Load the blank tape that has been rewound again. Set to the forward and reverse search modes, and make sure that step (6) is satisfied.
(8) Connect an oscilloscope to TP3.
(9) Synchronize the oscilloscope with TP1.
(10) Set the oscilloscope to (+) slope.
(11) Play back the alignment tape. Set to forward search and reverse search modes, and make sure that the FM waveform does not collapse.
Also, make sure that noise bars do not fluctuate up and down on the monitor screen.
(12) If step (11) is not satisfied, it indicates that the OHD arm is abnormal (deformed). Replace the OHD arm.

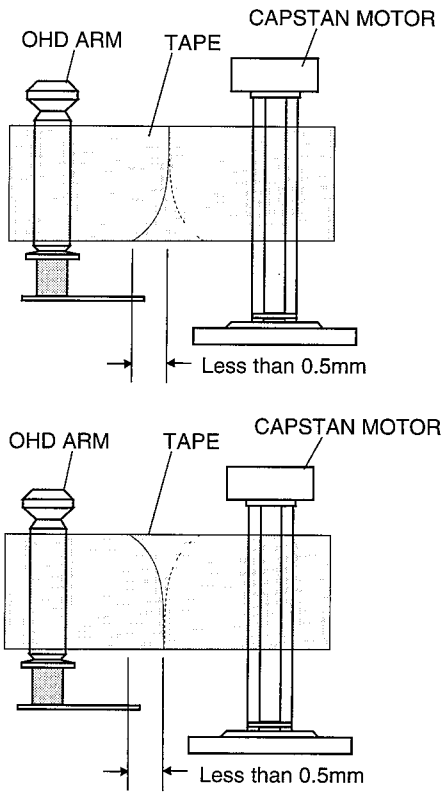


Fig. 3-7

4. CHECK THE TORQUE

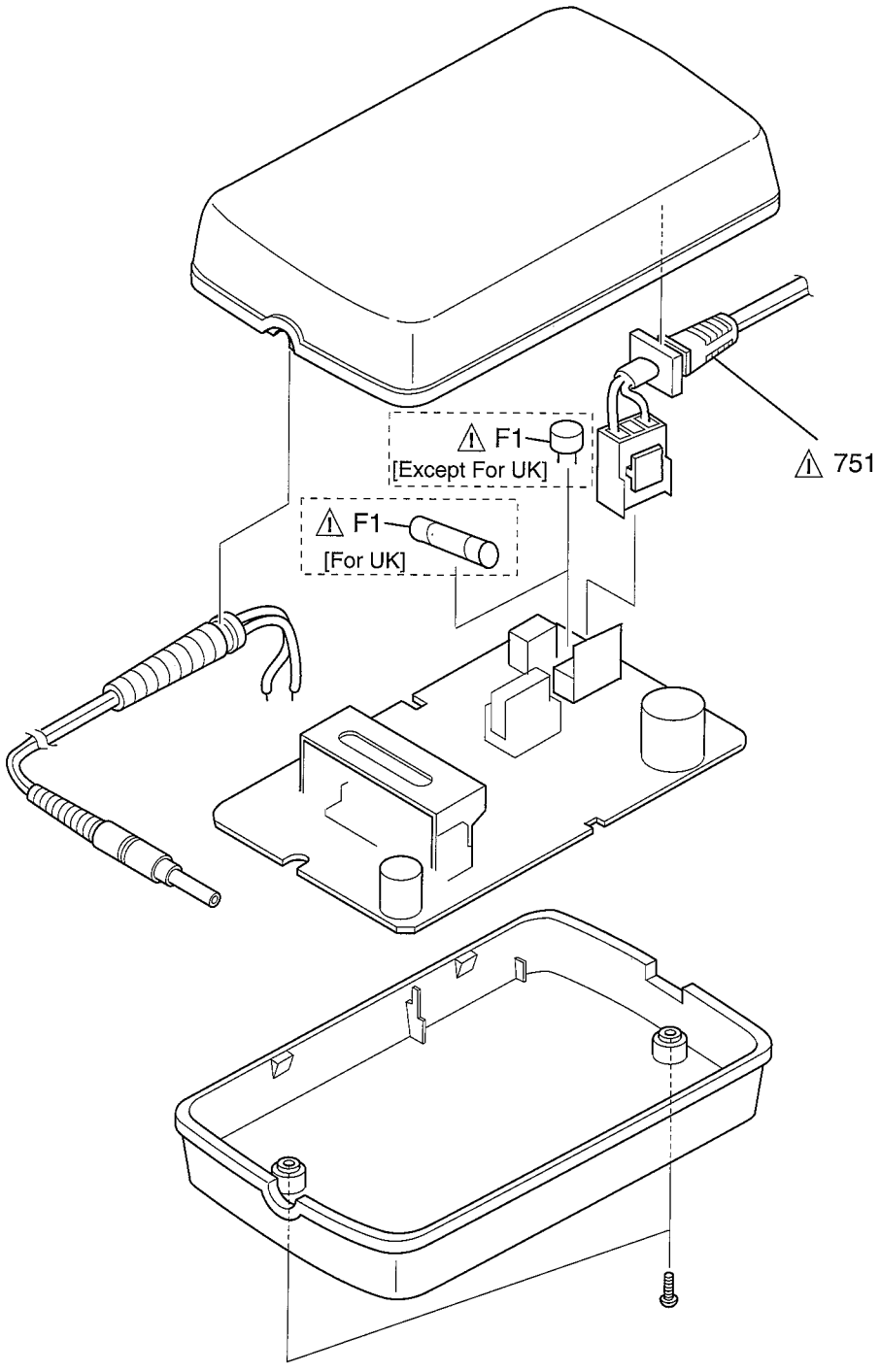
There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	VCR Mode	Measured Reel Disk	Torque Value	Torque Cassette Used
Take-up Torque	Playback	Take-up	10 ± 3 g-cm	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Rewind Torque	Reverse Search	Supply	31 ± 6 g-cm	NTSC: SRK-8T-132 PAL: SRK-8T-232
Take-up Brake Torque	Reverse Search to Stop	Take-up	10g-cm or more	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Slack Removal Torque	Unloading	Supply	25-50 g-cm	NTSC: SRK-8T-132 PAL: SRK-8T-232

CHAPTER 8 VM-ACE5E(AC ADAPTER)

EXPLODED VIEW & REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
⚠ 751	EV10681	CORD, AC [Except for UK, AU]
⚠ 751	EV10701	CORD, AC [For UK]
⚠ 751	EV10711	CORD, AC [For AU]
⚠ F1	FN10261R	FUSE [Except for UK]
⚠ F1	5722801	FUSE [For UK]



HITACHI

VM-E553LE/E555LE
VM-E558LE/E658LE
VM-H755LE/H855LE
VM-H955LE VM-ACE5E

TK No.6906E AV Consumer Products Division, Tokai

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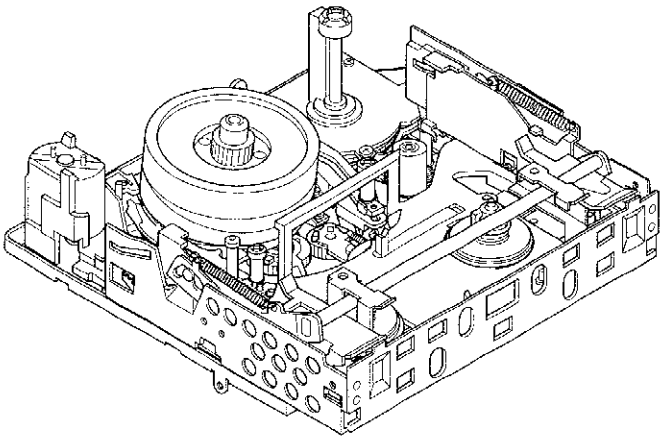
HITACHI

SERVICE MANUAL

TK | No.6811E

UH MECHANISM



Disassembly & Adjustment

Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

June 1998 Image & Information Media Systems Division, Tokai

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CHAPTER 4 EXPLODED VIEW

MECHANISM 20

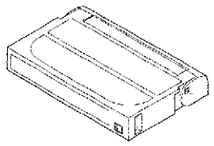
List of Component Identifications

Since the component names in this manual comply with those in the replacement parts list, many abbreviations and short names are used. The following table lists abbreviations for formal (general) names.

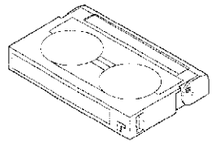
Abbreviations	Formal (general) names	Abbreviations	Formal (general) names
B-Base	Tension Band Base	Guide Roller (I)	Supply Guide Roller
Brake	Supply Sub Brake	Guide Roller (O)	Take-up Guide Roller
Brake Gear	Take-up Brake Gear	Link (L)	Supply Link Gear
Brush	Cylinder Brush	Link (R)	Take-up Link Gear
CM Base	Capstan Motor Base	LM Gear	Loading Motor Gear
Drive Arm	Loading Drive Arm	Mode Switch	Mechanism State Switch
Drive Lever	Pressure Roller Drive Lever	OHD Arm	Pull Out Arm
ED Arm	Eject Drive Arm	Pressure Arm	Pressure Roller Arm
Guide Rail (I)	Supply Guide Roller Rail	Operation Plate	Tension Operation Plate
Guide Rail (O)	Take-up Guide Roller Rail		

Jigs And Tapes For Adjutstment

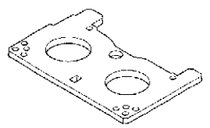
1. ALIGNMENT TAPE
Color Bar/400Hz
For NTSC
20HSC-2: No. 7099231
For PAL
20HSC-3: No. 7099232



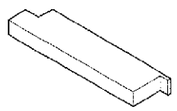
2. CASSETTE TORQUE METER
For NTSC
SRK-8T-132: No. 7099235
SRK-8T-112: No. 7099385
For PAL
SRK-8T-232: No. 7099236
SRK-8T-212: No. 7099402



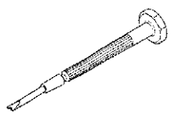
3. MASTER PLANE
No. 7099237



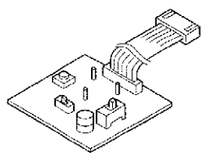
4. REEL DISK HEIGHT JIG
No. 7099238



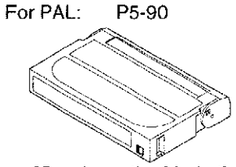
5. SPECIAL DRIVER
No. 7099239



6. ATF-R JIG (*1, *2)
No. 7069461



7. BLANK TAPE
For NTSC: P6-120
For PAL: P5-90



[Goods on the Market]

*1. Always set SW3 on the ATF-R jig to ON.
*2. The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.

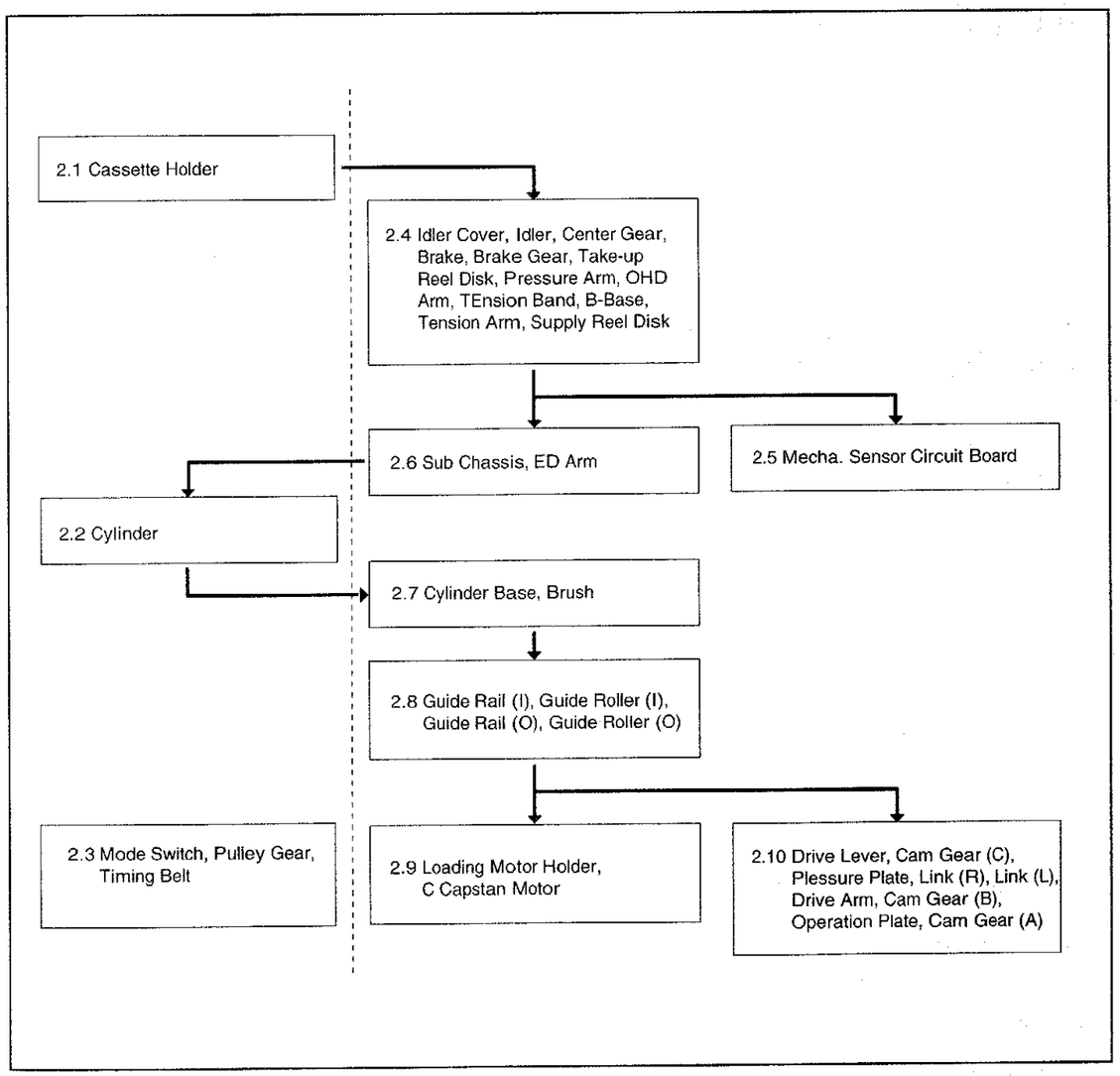
CHAPTER 1 DISASSEMBLY

1. BEFORE STARTING DISASSEMBLY

(1) The UH mechanism must basically be dismantled in the unloading stop state.
To manually set the mechanism to the unloading stop state, refer to "3. Method for Manual Unloading".
(2) Dismantle each component according to "1.1 Disassembly procedure".
(3) For reassembly, perform the reverse procedure to disassembly when not otherwise specified.
(4) Do not reuse removed washers.
(5) Since the component names in this manual comply with those in the replacement parts list, many abbreviations and short names are used. For formal (general) names, refer to the table on the first page of this manual.

1.1 Disassembly Procedure

Note: Components on the left in broken lines can be removed independently.


2.1 Cassette Holder
2.4 Idler Cover, Idler, Center Gear, Brake, Brake Gear, Take-up Reel Disk, Pressure Arm, OHD Arm, TEnsion Band, B-Base, Tension Arm, Supply Reel Disk
2.6 Sub Chassis, ED Arm
2.5 Mecha. Sensor Circuit Board
2.2 Cylinder
2.7 Cylinder Base, Brush
2.8 Guide Rail (I), Guide Roller (I), Guide Rail (O), Guide Roller (O)
2.3 Mode Switch, Pulley Gear, Timing Belt
2.9 Loading Motor Holder, C Capstan Motor
2.10 Drive Lever, Cam Gear (C), Plessure Plate, Link (R), Link (L), Drive Arm, Cam Gear (B), Operation Plate, Cam Gear (A)

1.2 Main Mechanical Conponents Identification

1.2.1 TopView

1. Cylinder
2. Capstan Motor
3. Guide Rail (O) [Take-up Guide Roller Rail]
4. Guide Roller (O) [Take-up Guide Roller]
5. OHD Arm [Pull Out Arm]
6. Pressure Arm [Pressure Roller Arm]
7. Take-up Reel Disk
8. Mecha. Sensor Circuit Board
9. Idler Cover
10. Idler
11. Sub Chassis
12. Supply Reel Disk
13. Link (R) [Take-up Link Gear]
14. Link (L) [Supply Link Gear]
15. Tension Band
16. Guide Roller (I) [Supply Guide Roller]
17. Tension Arm
18. Guide Rail (I) [Supply Guide Roller Rail]
19. Main Chassis
20. Loading Motor Holder
21. Cylinder Base

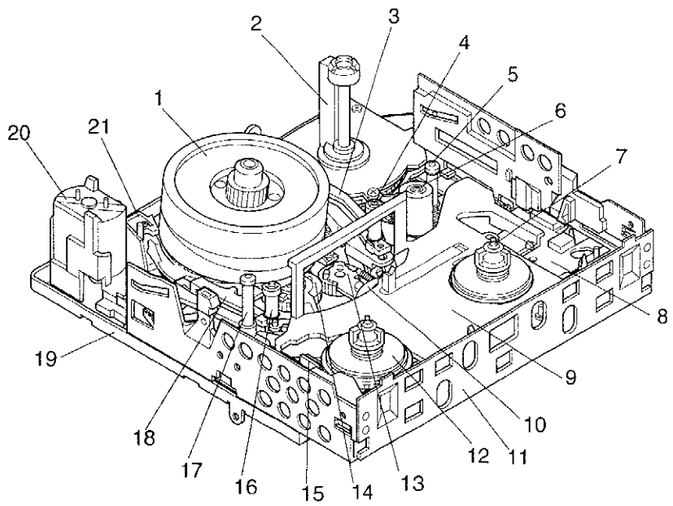


Fig. 1-1

1.2.2 Bottom View

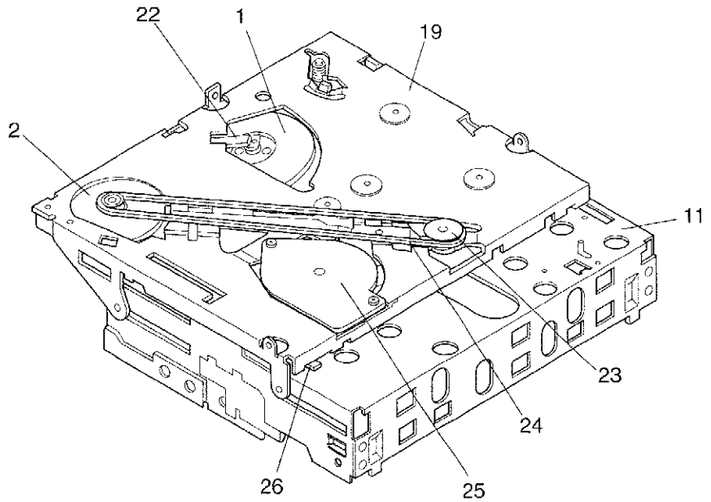


Fig. 1-2

1. Cylinder
2. Capstan Motor
11. Sub Chassis
19. Main Chassis
22. Brush [Cylinder Brush]
23. Pulley Gear
24. Timing Belt
25. Mode Switch [Mechanism State Switch]
26. ED Arm [Eject Drive Arm]

2. MECHANICAL COMPONENTS REMOVAL

2.1 Cassette Holder

Note: If the cassette holder does not raise, to move the EJECT LOCK of the holder to raise it. (See Fig. 2-1)

(1) Remove the E-rings holding the cassette holder on the left and right. (See Fig. 2-1)
(2) Use the linked sections of the holder front arms (L&R) with the sub chassis as pivots, to lift the rear arms (L&R) in the direction of the arrow.
(3) Release the front arms (L&R) from the sub chassis, and remove the cassette holder.

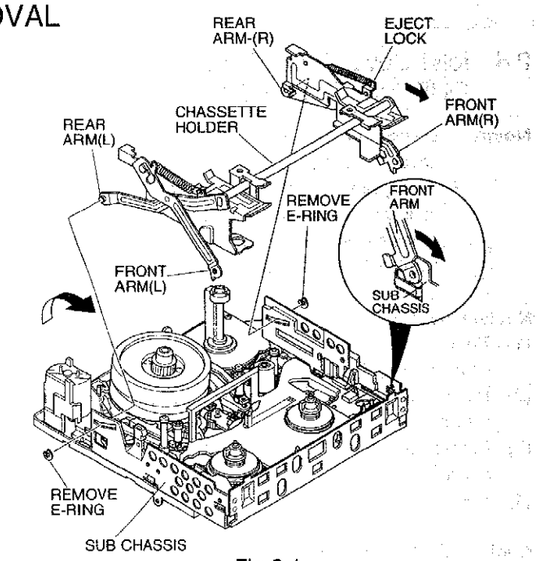


Fig.2-1

2.2 Cylinder

Note: Be sure not to touch video head tips with your fingers or tools, etc. during work.

(1) Remove 3 screws. (See Fig. 2-2)

Reinstallation procedure and caution:

1. After reinstalling the cylinder, be sure to perform the following mechanical adjustment.
   GUIDE ROLLERS HEIGHT ADJUSTMENT (ADJUSTMENT AFTER REPLACING THE CYLINDER)

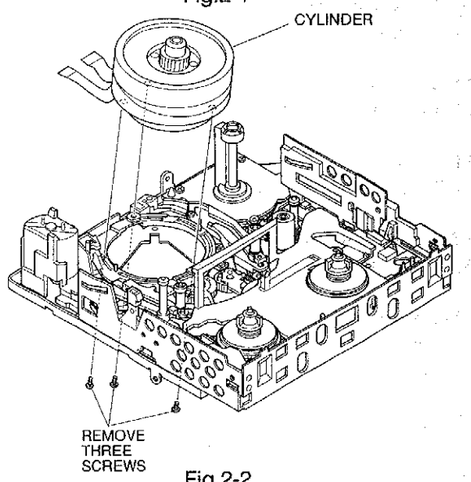


Fig.2-2

2.3 Mode Switch, Pulley Gear, Timing Belt

Note: Remove these components before removing the idler gear on the next item.

■ Mode Switch

(1) Remove 1 screw. (See Fig. 2-3)

Reinstallation procedure and caution:

1. Make sure of gear phase. (See Figs. 2-3(B), 2-14 and 2-15)

■ Pulley Gear, Timing Belt

(1) Remove 1 washer. (See Fig. 2-3 (A))
(2) Pull up the pulley gear and remove the timing belt.

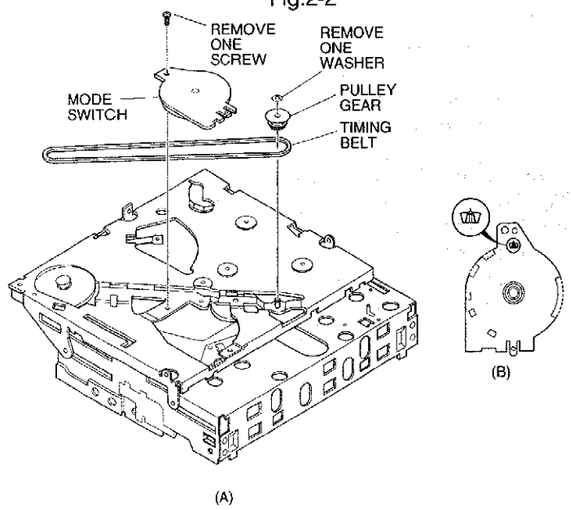


Fig.2-3

2.4 Idler Cover, Idler, Center Gear, Brake, Brake Gear, Take-up Reel Disk, Pressure Arm, OHD Arm, Tension Band, B-Base, Tension arm, Supply Reel Disk

Notes: 1. Do not turn over the sub chassis with the idler cover removed.
2. To separate the sub chassis from the main chassis, remove only components marked @ and proceed with removal of "2.6 Sub Chassis and ED Arm".

■ Idler Cover (@)
(1) Release the spring (a) between the brake and sub chassis. (See Fig. 2-4)
(2) Release the spring (b) between the pressure arm and idler cover.
(3) Release the spring (c) between the B-base and idler cover.
(4) Remove 4 screws.

■ Idler (@), Center Gear
(5) Remove the idler. (See Fig. 2-4)
(6) Pull up the center gear.

■ Brake (@)
(5) Remove the brake. (See Fig. 2-4)

■ Brake Gear
(5) Pull up the brake gear. (See Fig. 2-4)

■ Take-up Reel Disk
(5) Pull up the take-up reel disk. (See Fig. 2-4)

■ Pressure Arm, OHD Arm
(5) Pull up the pressure arm. (See Fig. 2-4)
(6) Release the spring (d) between the sub chassis and OHD arm.
(7) Pull out the OHD arm.

Reinstallation procedure and caution:
1. The pressure arm and OHD arm must be installed in the positions shown in Fig. 2-6(B).
2. After reinstalling the OHD arm, be sure to perform the following mechanical adjustment.
   OHD ARM HEIGHT ADJUSTMENT

■ Tension Band, B-Base, Tension Arm
(5) Release the tension spring. (See Fig. 2-4)
(6) Remove 1 screw holding the tension band and B-base.
(7) Remove the tension band with the tension arm.
(8) Remove the tension band from the tension arm in the direction of the arrow. (See Fig. 2-5)

Reinstallation procedure and caution:
1. The tension arm and must be installed in the positions shown in Fig. 2-6(A).
2. After reinstalling the tension band and tension spring, be sure to perform the following mechanical adjustment.
   TENSION ARM POSITION ADJUSTMENT
   TENSION TORQUE CHECK/ADJUSTMENT

■ Supply Reel Disk
(9) Pull up the supply reel disk. (See Fig. 2-4)

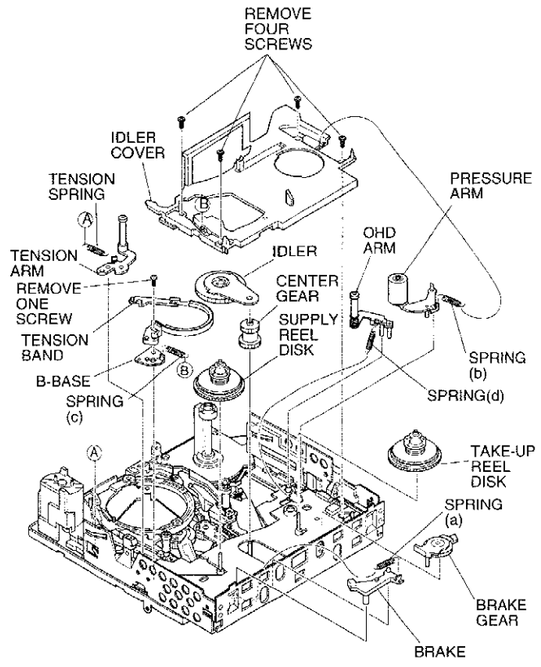


Fig.2-4

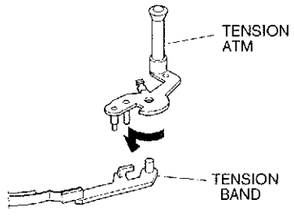


Fig.2-5

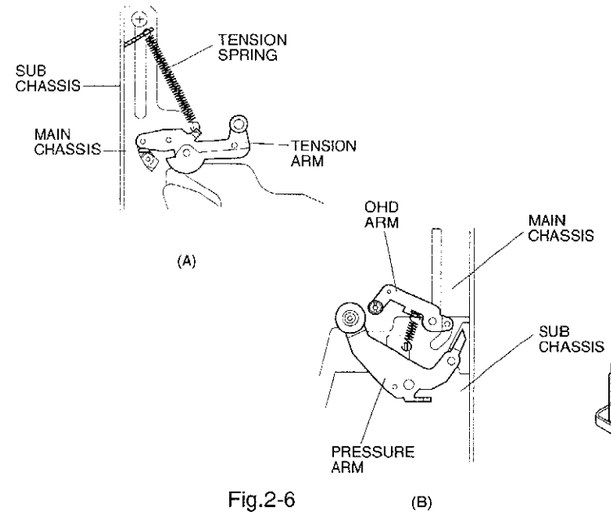


Fig.2-6

2.5 Mecha. Sensor Circuit Board

(1) Disconnect flat cable (See Fig. 2-7).
(2) Remove 4 screws.
(3) Remove 1 screws.

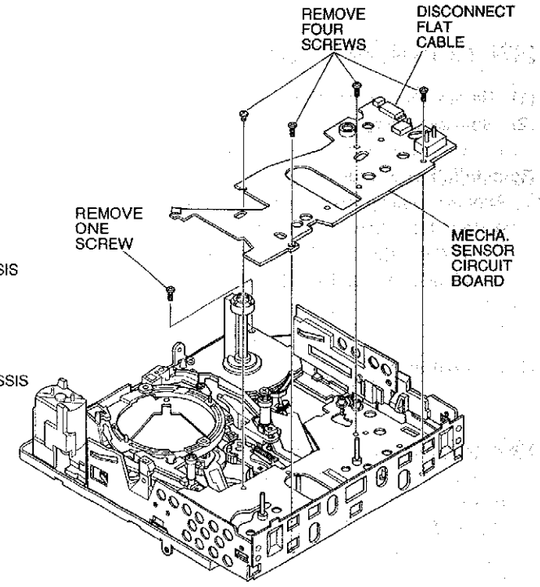


Fig.2-7

2.6 Sub Chassis, ED Arm

(1) Remove 2 screws. (See Fig. 2-8)
(2) Release linked sections (A) and (B) with the main chassis.
(3) Remove the ED Arm.

Reinstallation procedure and caution:
1. The ED arm must be installed in the position shown in Fig. 2-9(A).
2. Install the sub chassis so that sections (A) and (B) are linked with the main chassis. (See Fig. 2-8)
3. Install the sub chassis so that the projection of cam gear (B) and the screw are set to the positions shown in Fig. 2-9(B).

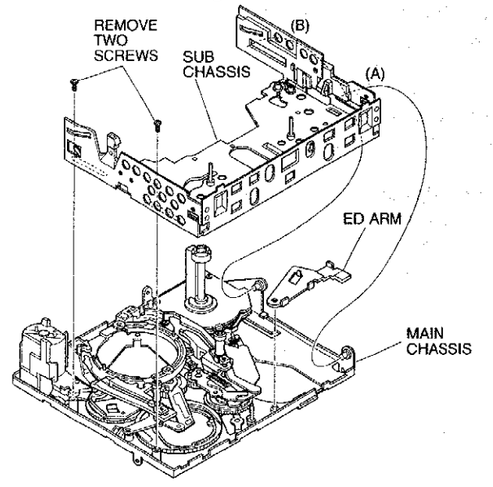


Fig.2-8

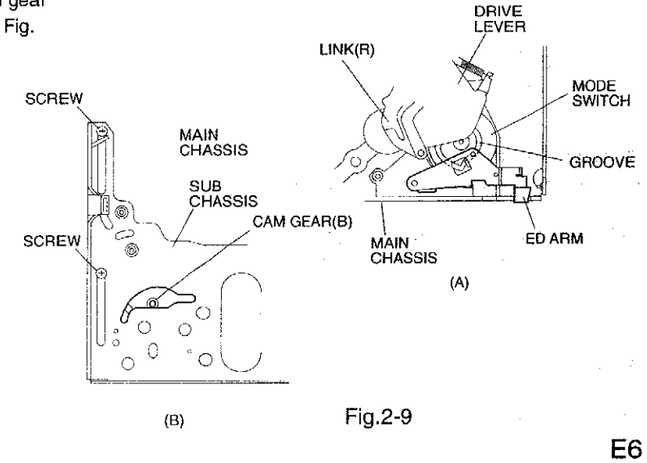


Fig.2-9

2.7 Cylinder Base, Brush

(1) Remove 3 screws. (See Fig. 2-10)
(2) Remove 1 screw.

Reinstallation procedure and caution:

1. After reinstalling the cylinder base, be sure to perform the following mechanical adjustment.
   CYLINDER BASE HEIGHT ADJUSTMENT
   GUIDE ROLLERS HEIGHT ADJUSTMENT

2.8 Guide Rail (I), Guide Roller (I), Guide Rail (O), Guide Roller (O)

Reinstallation procedure and caution:

1. After reinstalling the guide roller (I) or (o), be sure to perform the following mechanical adjustment.
   GUIDE ROLLERS HIGHT ROUGH ADJUSTMENT
   GUIDE ROLLERS HIGHT ADJUSTMENT

■ Guide Rail (I), Guide Roller (I)

(1) Remove 1 screw. (See Fig. 2-11)
(2) Turn guide rail (I) with guide roller (I) in the direction of the arrow (in parallel with the main chassis), to release guide roller (I) from link (L).
(3) Move guide roller (I) in the loading direction to remove it from guide rail (I).

■ Guide Rail (O), Guide Roller (O)

(1) Remove 2 screws. (See Fig. 2-11)
(2) Turn guide rail (O) with guide roller (O) in the direction of the arrow (in parallel with the main chassis), to release guide roller (O) from link (R).
(3) Move guide roller (O) in the loading direction to remove it from guide rail (O).

2.9 Loading Motor Holder (with Loading Motor), Capstan Motor

■ Loading Motor Holder

(1) Release 3 tabs. (See Fig. 2-12)

Reinstallation procedure and caution:

1. Make sure of gear phase. (See Figs. 2-14 and 2-15)
2. If guide rail (I) has been removed, install the loading motor holder before installing guide rail (I).

■ Capstan Motor

(1) Remove 2 screws. (See Fig. 2-12)
(2) Remove the timing belt

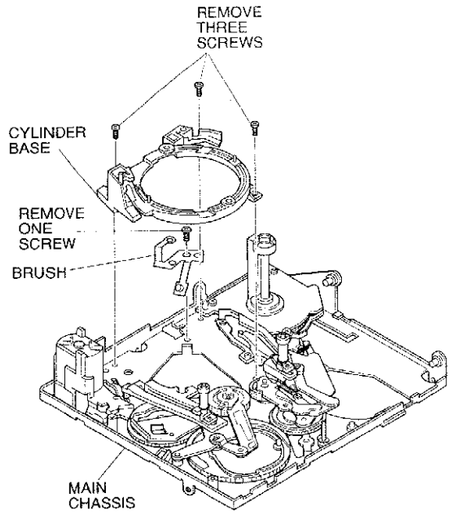


Fig.2-10

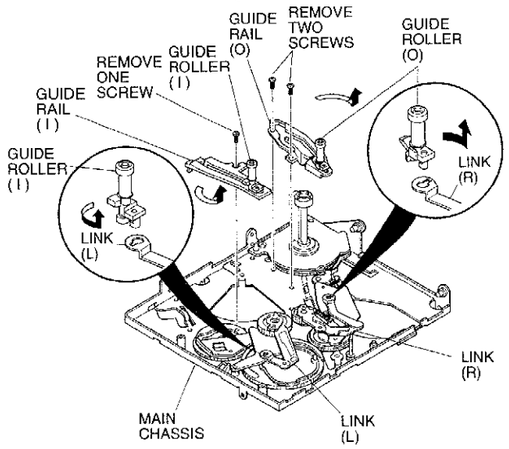


Fig.2-11

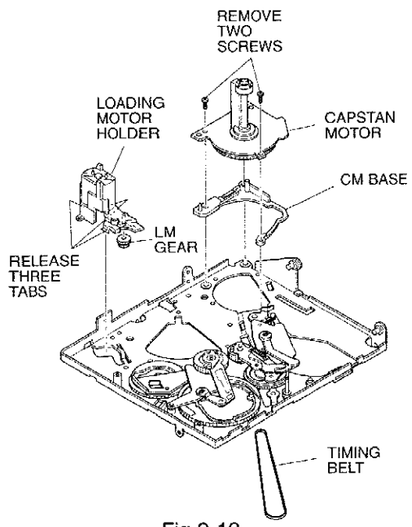


Fig.2-12

2.10 Link (R), Link (L), Drive Lever, Cam Gear (C), Pressure Plate, Drive Arm, Operation Plate, Cam Gear(B), Cam Gear (A)

Reinstallation procedure and caution:

1. When installing either of the following components, install the mode switch and make sure of phase matching of gears. (See Figs. 2-14 and 2-15)
2. If the loading motor holder has been removed, install it after making sure of phase matching of gears as shown above.

■ Link (R), Link (L)

(1) Remove 1 washer (a) and remove the link (R). (See Fig. 2-13)
(2) Remove 1 washer (b) and remove the link (L).

■ Drive Lever, Cam Gear (C), Pressure Plate

Note: The spring between the drive lever and pressure plate is strong. Remove and reinstall it by the following procedure:

(3) Remove 1 washer (c). (See Fig. 2-13)
(4) Removing the drive lever from the main chassis, release the spring between the drive lever and pressure plate.
(5) Remove 1 washer (d) and remove the pressure plate.
(6) Remove 1 washer (e) and remove the cam gear (C).

Procedure for reinstalling drive lever and caution:

1. The loading motor and mode switch must be installed and gear phases matched.
2. Before installing the drive lever in the regular position (as shown in Fig. 2-15), hook the spring between the drive lever and pressure plate.
3. Fixing the pressure plate near the regular position (as shown in Fig. 2-15) with tweezers, etc., install the drive lever in the regular position.

■ Drive Arm, Operation Plate, Cam Gear (B), Cam Gear (A)

(3) Remove 1 washer (f) and remove the drive arm. (See Fig. 2-13)
(4) Remove the operation plate.
(5) Remove 1 washer (g) and remove the cam gear (B).
(6) Remove 1 washer (h) and remove the cam gear (A).

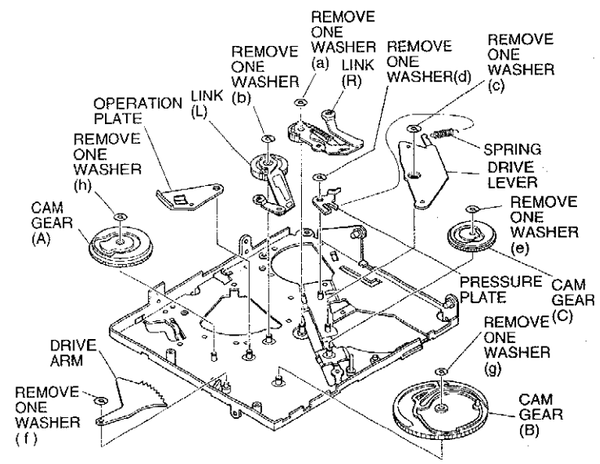


Fig.2-13

2.11 Gear Phase Matching Diagrams

The following diagrams show the phase matching of gears in the unloading stop state.

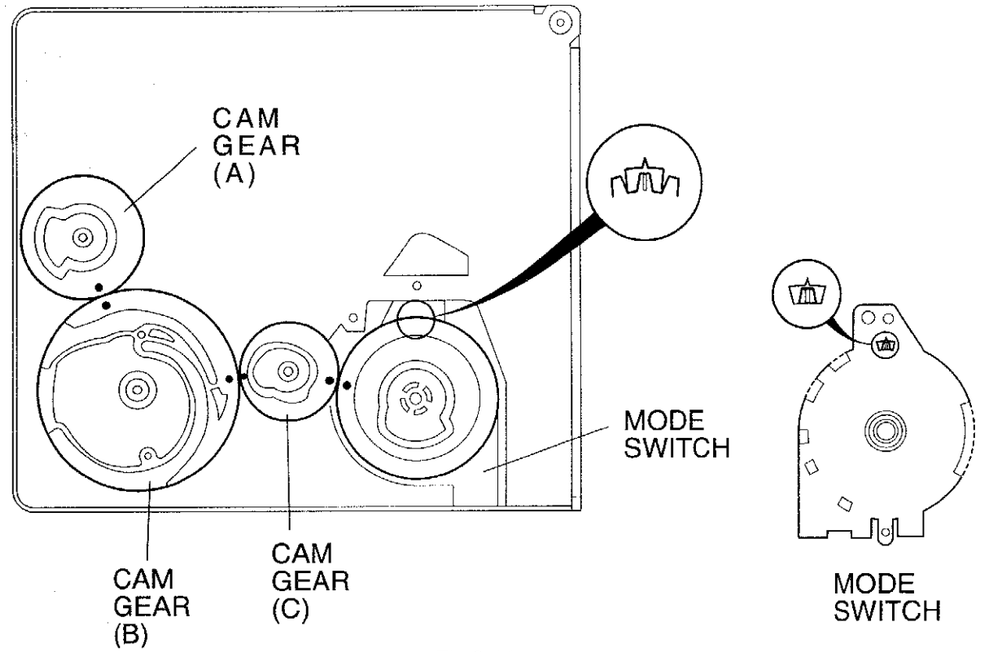


Fig.2-14

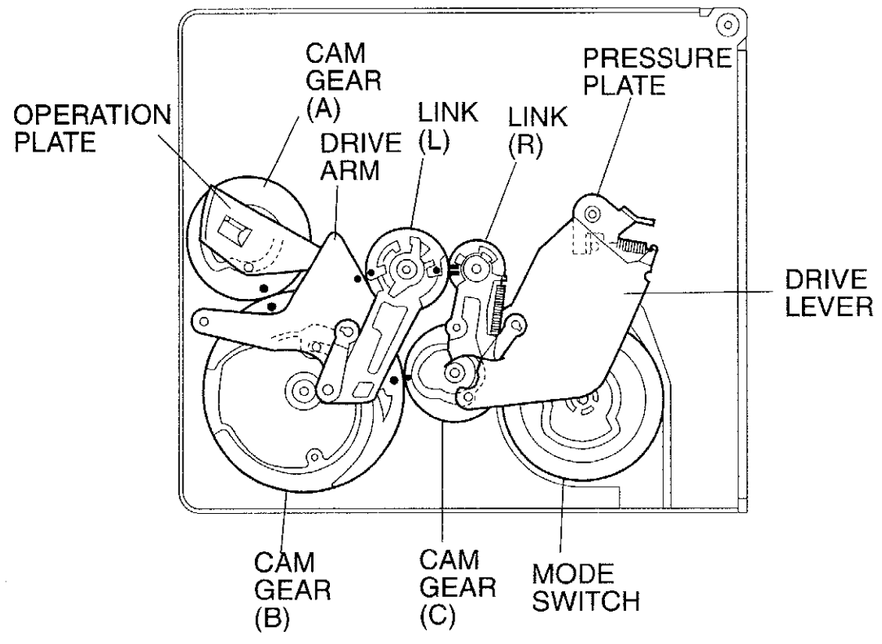


Fig.2-15

3. METHOD FOR MANUAL UNLOADING

CAUTION :
Perform this procedure for emergency only when normal unloading is not possible because the electrical circuits or loading motor is defective.

1) Release 2 tabs and pull out the loading motor from the loading motor holder. (See Fig. 3-1)

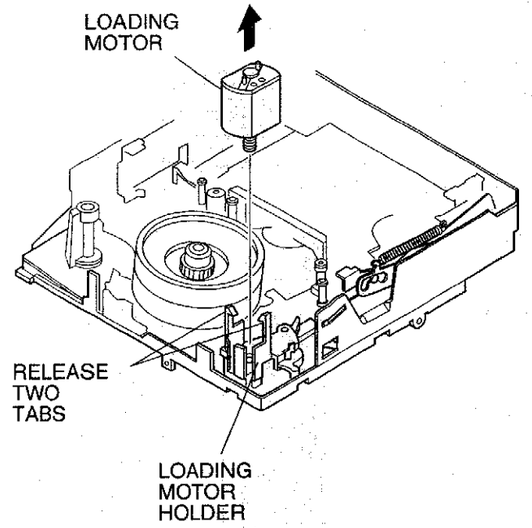
Note: The above removal is different from normal removal. In normal circumstances, remove the loading motor assembled with the loading motor holder. (The loading motor and loading motor holder comprise an assembly.)

2) Turn over the mechanism.

Note: Do not turn over with the idler cover removed.

3) Use a flat-bladed screwdriver, etc. to turn cam gear (A) or cam gear (B) in the directions of the arrows.

Notes: 1. Be careful not to damage the cam gears.
2. If tape is loaded, also turn the capstan motor manually to take up the tape.



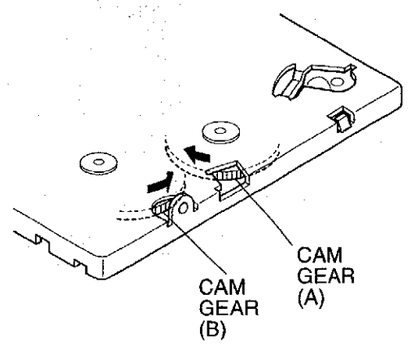
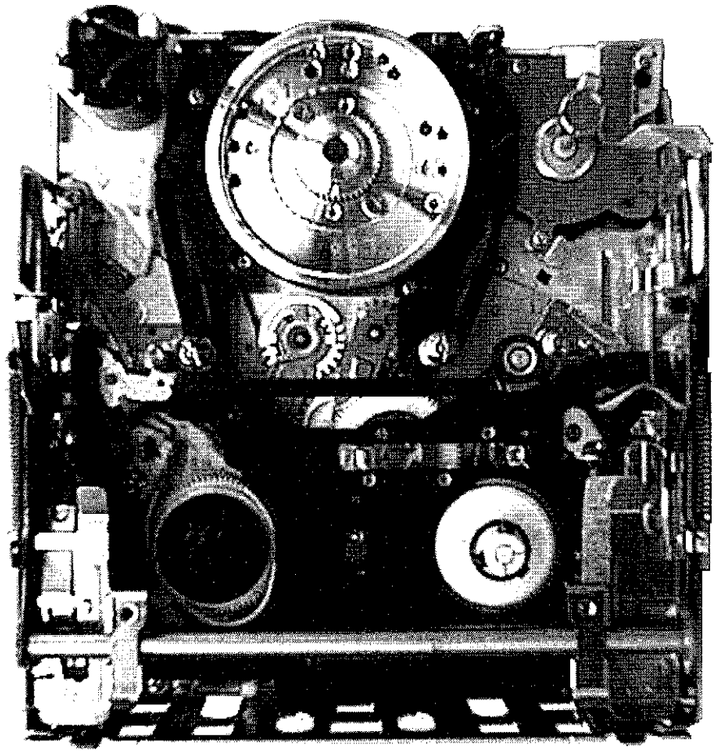


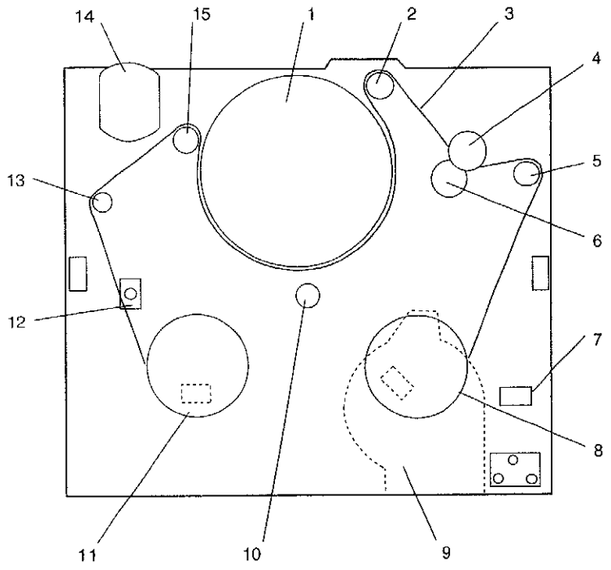
Fig.3-1

4. PHOTO OF THE MECHANISM



CHAPTER 2 MECHANICAL ADJUSTMENT

1. ADJUSTMENT POINTS ON THE MECHANISM



1. Cylinder
2. Guide Roller (O) [Take-up Guide Roller]
3. Tape
4. Capstan Motor
5. OHD Arm [Pull Out Arm]
6. Pressure Arm [Pressure Roller]
7. Cassette Holder Switch
8. Take-up Reel Disk
9. Mode Switch [Mechanism State Switch]
10. End LED
11. Supply Reel Disk
12. Tension Band Holder
13. Tension Arm [Tension Pole]
14. Loading Motor
15. Guide Roller (I) [Supply Reel Disk]

Fig. 1-1

2. BEFORE STARTING ADJUSTMENT

(1) See "CHAPTER 1 DISASSEMBLY" for dismantling and reassembling the mechanism, and matching phases of gears in assembly.

(2) The following describes the procedure for setting the mechanism to the playback mode without inserting a cassette (a circuit board that mounts mechanism drive circuits must be connected):
The playback mode cannot be kept by any of the following procedures because reel disks do not turn, etc.:
   1) Set the mechanism to the unloading stop or eject mode.
   2) Shade light from the end LEDs.
   3) Lower the cassette holder.
   4) Press the playback button.

(3) The following shows the procedure for loading and unloading the unassembled mechanism:
   1) Supply 4V DC to the terminals of loading motor:
      Red lead wire (+), brown lead wire (-): Loading
      Brown lead wire (+), red lead wire (-): Unloading

3. TAPE TRANSPORT SYSTEM CHECK/ADJUSTMENT

The tape transport system is a generic term for the path from the supply reel disk to the take-up reel disk via cylinder.

Notes: 1. The tape transport system is adjusted before shipment from the factory, so perform adjustments only when components of the transport system are replaced or adjustments of the transport system have drafted.
2. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust or oil, etc. adhering to the contact surfaces.

3.1 Tension Arm Position Adjustment (Fig. 3-1)

Note: Be sure to perform these adjustment after reinstalling the tension arm, tension band, tension spring.

■ **Adjustment Point**
Tension Band Holder
■ **Procedure**
(1) Hook the tension spring to position (b) of the hook on the sub chassis. (See Fig. 3-1)
(2) Set to the playback mode without loading a cassette. (See Fig. 3-1)
(3) Loosen screw (A), and adjust the position of tension band holder so that the relation of position between the tension arm and square hole in the loading motor holder is as shown in Fig. 3-1.
(4) After unloading, perform loading and make sure that the square hole position has not drifted.

Note: After the adjustment is completed, be sure to perform "3.2 Tension Torque Check/Adjustment".

3.2 Tension Torque Check/Adjustment (Fig. 3-1)

Note: Be sure to perform these check/adjustment after adjusting the tension arm position adjustment.

■ **Test Equipment/Jig**
Cassette Torque Meter
(NTSC: SRK-8T-112, PAL: SRK-8T-212)
■ **State of VCR**
Load a cassette torque meter and set the playback mode.
■ **Adjustment Point**
Tension Spring
■ **Procedure**
(1) Hook the tension spring to position (b) of the hook on the sub chassis. (See Fig. 3-1)
(2) Check the torque meter on the supply side to 7 to 11 g-cm.
If it is more than 11.1 g-cm:
Move the tension spring to position (c).
If it is less than 6.9 g-cm:
Move the tension spring to position (a).

Note: If the tension spring hooking position has been moved, be sure to perform "3.1 Tension Arm Position Adjustment".

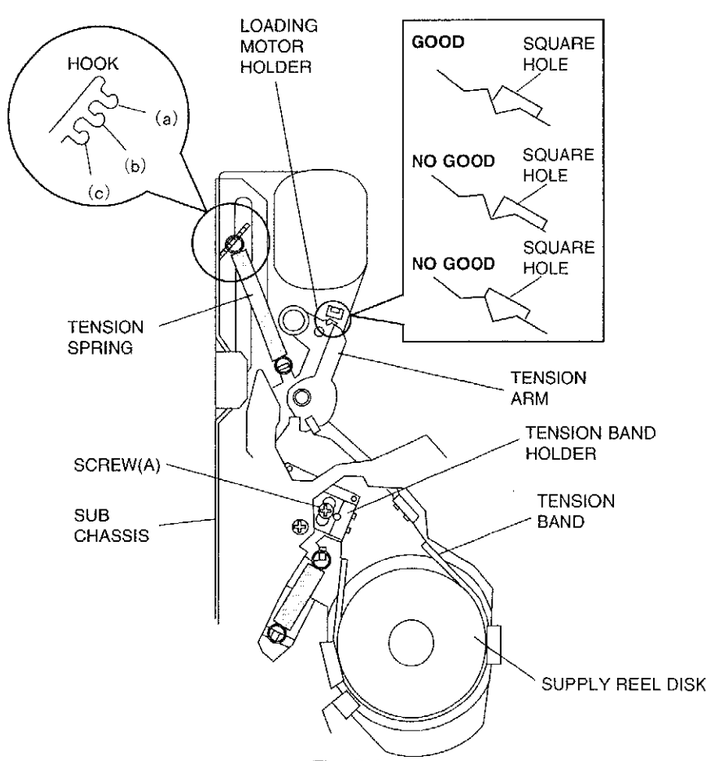


Fig. 3-1

3.3 Cylinder Base (Guide Roller Catchers) Height Adjustment (Fig. 3-2)

Note: Be sure to perform these adjustment after reinstalling the cylinder base.

Note: After this adjustment is completed, be sure to perform "3.5 Guide Roller Height Adjustment (Adjustment After Replacing the Cylinder)".

■ **Adjustment Point**
Screws on the Cylinder Base
■ **Procedure**
(1) Turn the two screws on the cylinder base (guide roller catchers) so that the specified values can be obtained as shown. (See Fig. 3-2)

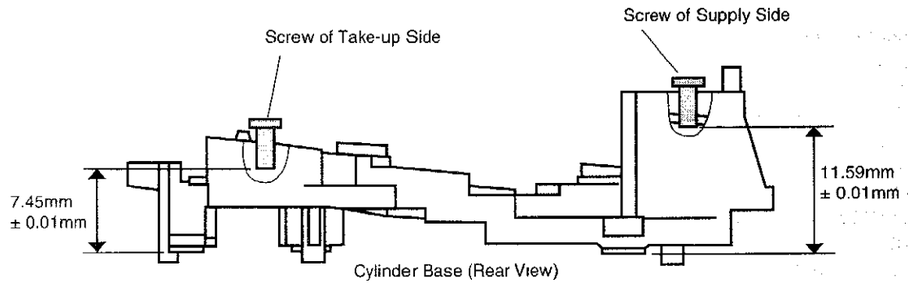


Fig. 3-2

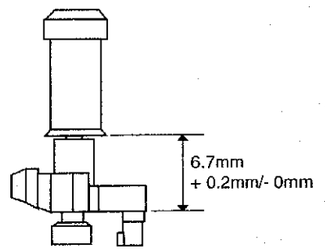
3.4 Guide Rollers Height Rough Adjustment (Fig. 3-3)

Note: Be sure to perform these adjustment after reinstalling the guide rollers.

■ **Test Equipment/Jig**
Special Drive
■ **Adjustment Point**
Top of the Guide Roller (I)
Top of the Guide Roller (O)
■ **Procedure**
(1) Turn the top of each guide roller so that the specified values can be obtained as shown. (See Fig. 3-3)

Note: After this adjustment is completed, be sure to perform "3.5 Guide Roller Height Adjustment (Adjustment After Replacing the Cylinder)".

Guide Roller (I) [Supply Guide Roller]



Guide Roller (O) [Take-up Guide Roller]

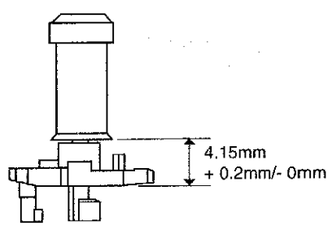


Fig. 3-3

3.5 Guide Rollers Height Adjustment (Adjustment After Replacing Cylinder) (Figs. 3-4, 3-5)

Notes: 1. Be sure to perform this adjustment after reinstalling the guide rollers and cylinder base. Also note that before proceeding with this adjustment, the adjustment on the previous item must be completed.
2. After the cylinder is replaced, electrical circuit adjustments will also be necessary. See the service manual of each model.
3. Before performing this adjustment, refer to Fig. 3-5 and modify the ATF-R Jig.

■ **Test Equipment/Jig**
Alignment Tape
ATF-R Jig
(SW1: OFF, SW3: ON, RT1: Mechanical Center)
Oscilloscope
Special Drive

■ **Test Point**
TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ **Adjustment Point**
Top of the Guide Roller (I)
Top of the Guide Roller (O)

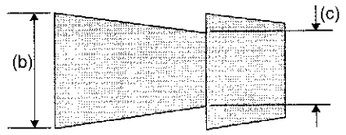
■ **Procedure**
(1) Loading an alignment tape that has been completely rewound.
(2) Set to the power off.
(3) Connect the ATF-R jig to the test terminal on the circuit board.
(4) Press the PLAY button and hold it, then set the POWER switch to VIDEO position.
(5) Connect an oscilloscope to TP3.
(6) Synchronize the oscilloscope with TP1.
(7) Set the oscilloscope to (+) slope.

Guide Roller (I) (Fig. 3-4)
(8) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
(9) Adjust the height of the guide roller (I) so the waveform is flat.
(10) Adjust the voltage level control of the oscilloscope so that portion (a) of the waveform is set to 4 graduations.
(11) Set SW1 on the ATF-R jig to ON.
(12) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (b) of the waveform is set to 3 graduations.
(13) Adjust the height of the guide roller (I) so the minimum amplitude (c) of the waveform is set to more than 2 graduations.

Guide Roller (O) (Fig. 3-4)
(14) Set SW1 to OFF and RT1 to mechanical center on the ATF-R jig.
(15) Set the oscilloscope to (-) slope.
(16) Perform the same procedure as for guide roller (I) hereafter. See steps (8) - (13).
(17) After completing adjustment of guide rollers (I) and (O), load the alignment tape again, and make sure that the content of this adjustment is satisfied.

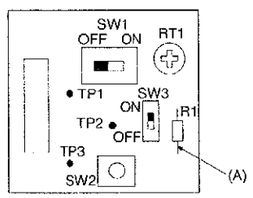
Note: After adjustment is completed, be sure to disconnect the ATF-R jig from the test terminal and reverse the modification to ATF-R jig.

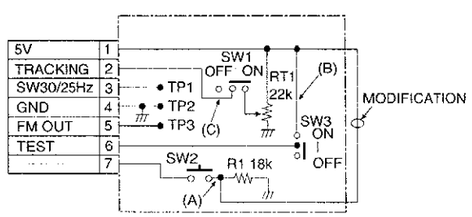
(a):4 graduations



(b):3 graduations
(c):More than 2 graduations

Fig. 3-4





Modification: Connect terminal (A) of the resistor and pin 1 (5V Line).

Fig. 3-5

3.6 OHD Arm Height Adjustment (Fig. 3-6)

Notes: 1. Be sure to perform this adjustment after reinstalling the OHD arm.
2. This adjustment minimizes minute twisting of tape that occurs between the OHD arm and capstan motor due to the structure of mechanism.
3. It is not necessary to modify the ATF-R jig.

■ **Test Equipment/Jig**
Alignments Tape
Blank Tape
ATF-R Jig (SW1: OFF, SW3: OFF)
Special Drive
Oscilloscope
Color Monitor TV

■ **Test Point**
Video Out
TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ **State of VCR**
Connect the color monitor TV to video out.
Connect the ATF-R jig to the test terminal on the circuit board.

■ **Adjustment Point**
Top of the OHD Arm

■ **Procedure**
(1) Turn power on.
(2) Load a blank tape that has been completely rewound.
(3) Set to the forward search mode.
(4) Carefully observe the tape between the OHD arm and capstan in a bright place, and make sure that minute twisting occurs on the tape. The color of tape (reflected image) at the twisted portion will appear different from the other portions. Also, twisting will look different on the left/right and up/down depending on the direction of incident light, as shown in Fig. 3-6.
(5) Adjust the height of OHD arm so that the widest portion where color of tape looks different is less than 0.5 mm.
(6) Make sure that no curling of tape occurs at either the top or the bottom flange of OHD arm. (However, even if some curling occurs at either flange, it can be judged in the allowable range if there is no scratch on the tape and there is no gap between the other flange and tape edge.)
(7) Load the blank tape that has been rewound again. Set to the forward and reverse search modes, and make sure that step (6) is satisfied.
(8) Connect an oscilloscope to TP3.
(9) Synchronize the oscilloscope with TP1.
(10) Set the oscilloscope to (+) slope.
(11) Play back the alignment tape. Set to forward search and reverse search modes, and make sure that the FM waveform does not collapse.
Also, make sure that noise bars do not fluctuate up and down on the monitor screen.
(12) If step (11) cannot be done, turn the screw on the take-up side of the cylinder base (see Fig. 3-2) counterclockwise by approx. 45°, and then perform this adjustment from the start, after doing "3.5 Guide Roller Height Adjustment (Adjustment After Replacing the Cylinder)".

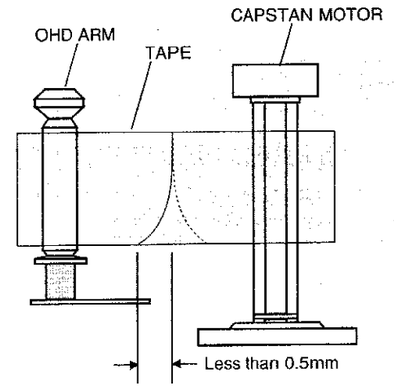


Fig. 3-6

4. CHECK THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	VCR Mode	Measured Reel Disk	Torque Value	Torque Cassette Used
Take-up Torque	Playback	Take-up	10 ± 3 g-cm	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Rewind Torque	Reverse Search	Supply	31 ± 6 g-cm	NTSC: SRK-8T-132 PAL: SRK-8T-232
Take-up Brake Torque	Reverse Search to Stop	Take-up	10g-cm or more	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Slack Removal Torque	Unloading	Supply	25-50 g-cm	NTSC: SRK-8T-132 PAL: SRK-8T-232

CHAPTER 3 MAINTENANCE/INSPECTION PROCEDURE

1. REQUIRED MAINTENANCE

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

2. SCHEDULED MAINTENANCE

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 500 hours. Table 1 shows the relation between time used per day and inspection period.

Table 1

Average hours used per day	When inspection is necessary: About 6 months ↓	About 9 months ↓	About 18 months ↓
One hour			
Two hours			
Three hours			

3. CHECK BEFORE STARTING REPAIRS

The faults occurring in the playback picture as shown in Table 2 can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the parts shown in Table 2.

Table 2

Phenomenon	Inspection Location
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, cylinder or in tape transport system
Vertical jitter	Dirt on video head or in tape transport system
Low volume or sound distorted	Dirt on video head or worn video head

4. TOOLS NEEDED FOR INSPECTION AND MAINTENANCE

(1) Head cleaning kit
(2) VCR oil and grease (Table 3)
(3) Alcohol
(4) Gauze
(5) Cleaning tape 〔Maxell 8M-CL MCA (dry type)〕

Table 3 Locations for Greasing and Oiling

Name	Oil or Greasing Location
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Froil (G31-SA)	Lubricate metal or molded section under light load
Molicoat (PG-641)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws and nuts.

5. MAINTENANCE PROCEDURE

5.1 Cleaning

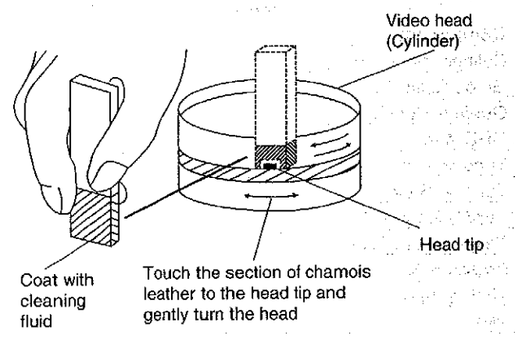
5.1.1 Cleaning Video Head

First use a cleaning tape. Be sure to use the specified cleaning tape and read its instruction sheet carefully before using it. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

5.1.2 Cleaning the Tape Transport System and Drive System, etc.

Wipe with gauze moistened with alcohol.

Notes: 1. The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.
2. Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.


Video head (Cylinder)
Head tip
Coat with cleaning fluid
Touch the section of chamois leather to the head tip and gently turn the head

5.2 Lubrication

5.2.1 Guide Lines for Lubricating with Oil

Use the oiler to apply one or two drop or Sonic Slidas oil. Make sure not to use too match oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with a alcohol.

5.2.2 Periodic Oil Lubrication

Lubricate the specified locations only when replacing components. Refer to the exploded views for the lubricating locations.

5.3 Greasing

5.3.1 Greasing Guide Lines

Apply grease Froil or Molicoat, with a stick or brush.
Do not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistened with alcohol.

5.3.2 Periodic Greasing

Grease the specified locations only when replacing components. Refer to the exploded views for the greasing locations.

Table 4 Parts to be Maintained/Inspected and Maintenance/Inspection Schedules

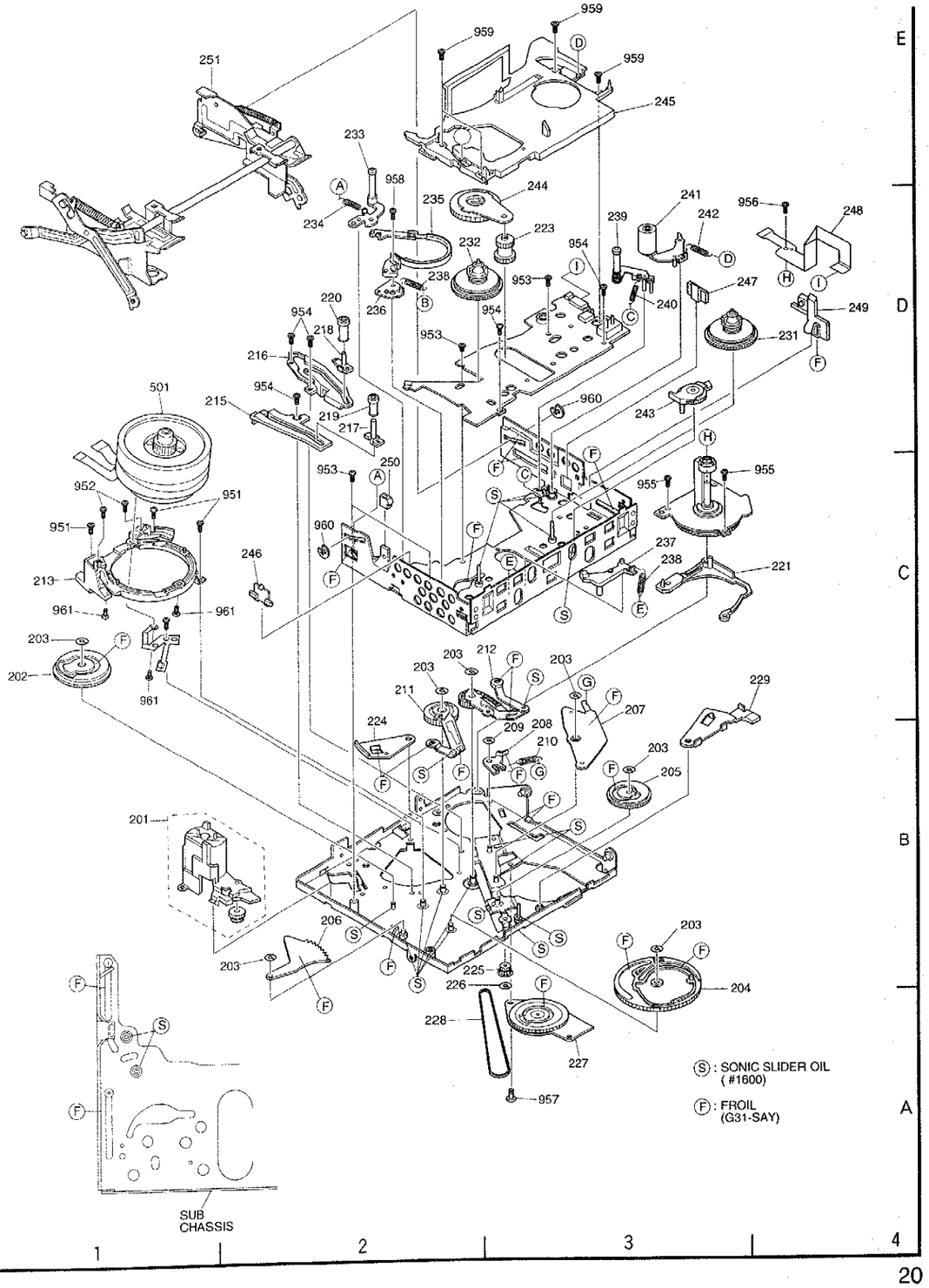
Caution: The following table does not apply to all units. The maintenance/inspection schedules depend on how the unit is used and the environment in which it is used.

Component \ Hours	500	1000	1500	2000	2500	3000
Cylinder (Video Head)	C	C／R	C	C／R	C	C／R
Guide Roller (I)	C	C	C	C	C	C
Guide Roller (O)	C	C	C	C	C	C
OHD Arm	C	C	C	C	C	C
Tension Arm	C	C	C	C	C	C
Tension Band		R		R		R
Supply Reel Disk	C	C	C	C／R	C	C
Take-up Reel Disk	C	C	C	C／R	C	C
Pressure Arm	C	C	C	C／R	C	C
Timing Belt				R		
Idler				R		
Capstan Motor (Shaft)	C	C	C	C／R	C	C
Loading Motor				R		

C : Cleaning
R : Parts Replacing

CHAPTER 4 EXPLODED VIEW

MECHANISM



HITACHI

UH MECHANISM

UH MECHANISM

UH MECHANISM TK No.6811E Image & Information Media Systems Division, Tokai

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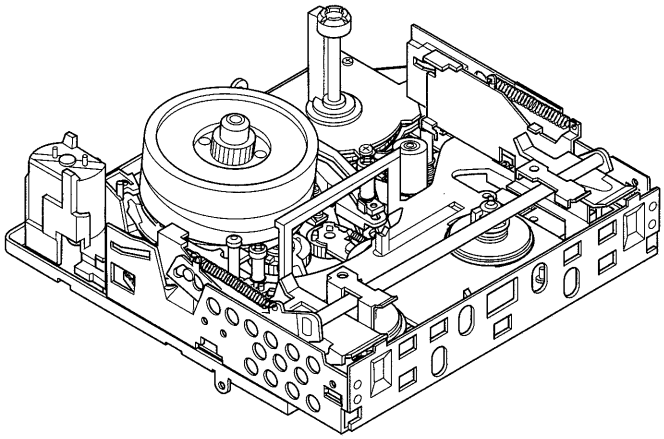
SERVICE MANUAL



TK | No.6811E-1

UH MECHANISM

SUPPLEMENT

Mechanical Adjustment

"Mechanical Adjustment" in the UH MECHANISM Service Manual (No. 6811E) has been revised.
Refer to this manual, in place of the previous "Mechanical Adjustment".

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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

December 1999 Digital Media Products Division,Tokai

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4. CHECK THE TORQUE E6

For Torque Value

Torque values are indicated in conventional units in this manual, along with SI units in brackets [ ].

Note: SI stands for Le Système international d'unités in French, which is an internationally unified measurement unit system.

CHAPTER 2 MECHANICAL ADJUSTMENT

1. ADJUSTMENT POINTS ON THE MECHANISM

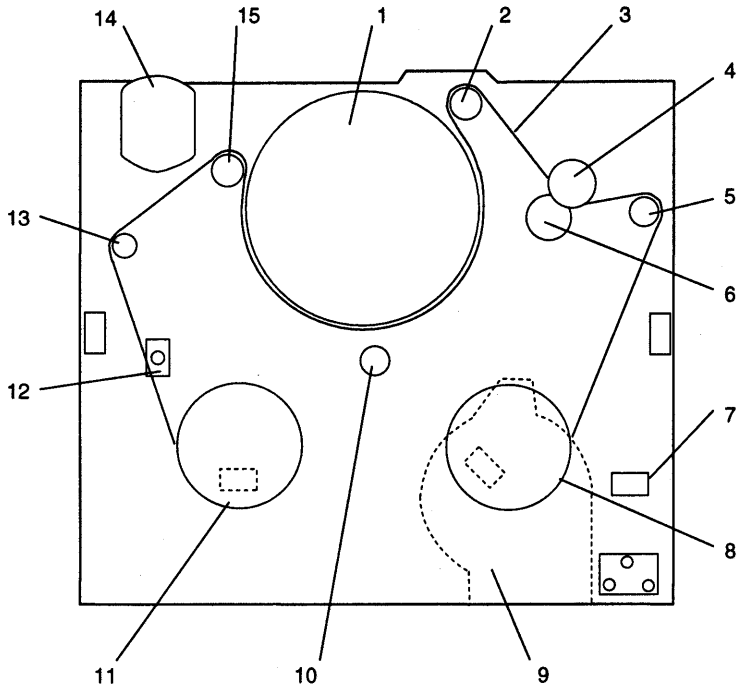


Fig. 1-1

1. Cylinder
2. Guide Roller (O) [Take-up Guide Roller]
3. Tape
4. Capstan Motor
5. OHD Arm [Pull Out Arm]
6. Pressure Arm [Pressure Roller]
7. Cassette Holder Switch
8. Take-up Reel Disk
9. Mode Switch [Mechanism State Switch]
10. End LED
11. Supply Reel Disk
12. Tension Band Holder
13. Tension Arm [Tension Pole]
14. Loading Motor
15. Guide (I) [Supply Guide]

2. BEFORE STARTING ADJUSTMENT

(1) See "CHAPTER 1 DISASSEMBLY" for dismantling and reassembling the mechanism, and matching phases of gears in assembly.

(2) The following describes the procedure for setting the mechanism to the playback mode without inserting a cassette (a circuit board that mounts mechanism drive circuits must be connected):
The playback mode cannot be kept by any of the following procedures because reel disks do not turn, etc.:
   1) Set the mechanism to the unloading stop or eject mode.
   2) Shade light from the end LEDs.
   3) Lower the cassette holder.
   4) Press the playback button.

(3) The following shows the procedure for loading and unloading the unassembled mechanism:
   1) Supply 4V DC to the terminals of loading motor:
   Red lead wire (+), brown lead wire (-): Loading
   Brown lead wire (+), red lead wire (-): Unloading

3. TAPE TRANSPORT SYSTEM CHECK/ADJUSTMENT

The tape transport system is a generic term for the path from the supply reel disk to the take-up reel disk via cylinder.

Notes: 1. The tape transport system is adjusted before shipment from the factory, so perform adjustments only when components of the transport system are replaced or adjustments of the transport system have drafted.
2. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust or oil, etc. adhering to the contact surfaces.

3.1 Tension Arm Position and Tension Torque Check (Fig. 3-1)

Notes: 1. This item is an operation check for periodic maintenance. Check the following, and only when adjustment is necessary, proceed with adjustment in next item.
2. Adjustment is unconditionally necessary after replacing the tension arm, tension band or tension arm spring. Proceed with adjustment in next item.

■ **Test Equipment/Jig**

Cassette Torque Meter (SRK-8T-112 or 212)

■ **Procedure**

(1) Make sure that the tension arm spring is hooked onto hook (b) on the subchassis. (Fig. 3-1)
(2) Set the camcorder to the playback mode without inserting a cassette. (See the previous page.)

[Check item 1]

(3) After setting to the rewind mode, set the camcorder to the playback mode. Make sure that the tension arm moves in the direction of arrow (B).

[Check item 2]

(4) Insert the cassette torque meter, set to the playback mode, and make sure that the value on the supply side is 8-10 g-cm [0.00078-0.00098 N·m].
(5) Proceed with adjustment in next item only when the check items are not satisfied.

3.2 Tension Arm Position and Tension Torque Adjustment (Fig. 3-1, 3-2)

Notes: 1. Be sure to perform this adjustment after replacing the tension arm, tension band or tension arm spring. When the tension arm or tension spring must be replaced, also replace the tension band.
2. Be sure to replace the tension band before performing this adjustment.

■ **Test Equipment/Jig**

Cassette Torque Meter (SRK-8T-112 or 212)

■ **Adjustment Point**

Band Bracket (B)

■ **Procedure**

(1) Attach all parts. Loosen screw (E).
(2) Hook the tension arm spring onto hook (b) on the subchassis. (Fig. 3-1)
(3) Set the camcorder to the playback mode without inserting a cassette. (See the previous page.)
(4) Make sure that the tension arm fully moves in the direction of arrow (A).
(5) Check the position relationship between the tension arm and the square hole in the loading motor holder (initial position). [Fig. 3-2 (initial position)]

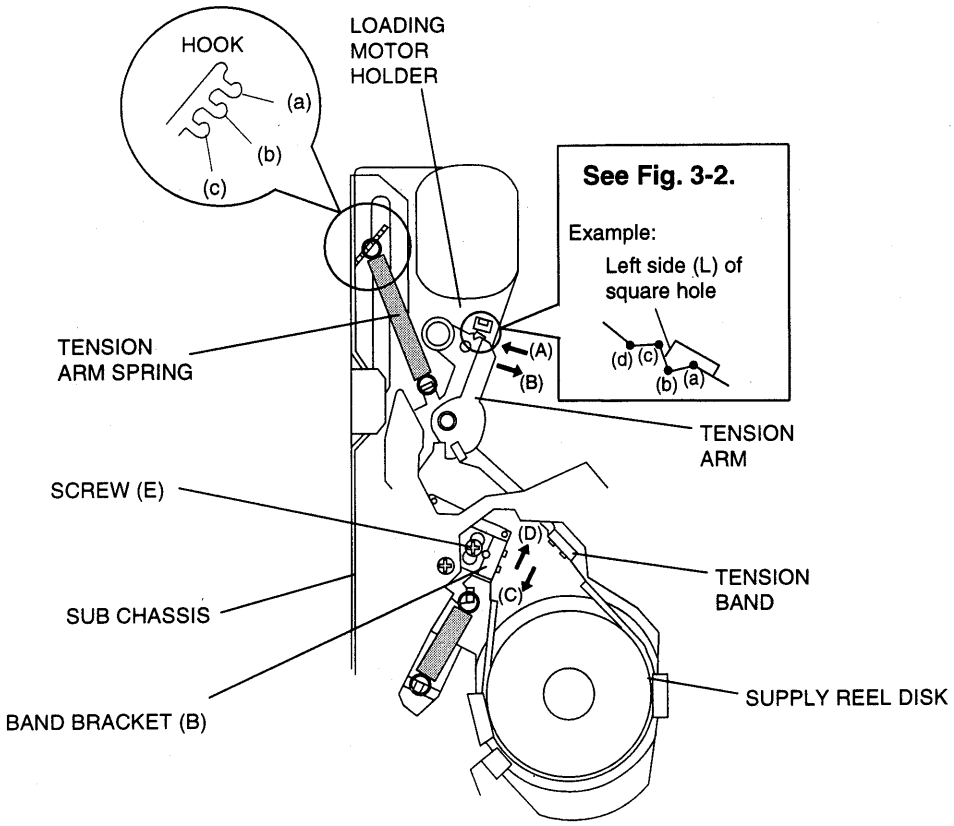


Fig. 3-1

(6) Adjust the position of band bracket B according to the initial position so that the relationship between the tension arm and the square hole in the loading motor holder is as shown in Fig. 3-2 (adjustment position).
(7) Tighten screw (E) to temporarily fix band bracket B so that it does not move.

[Check item 1]

(8) After setting to the rewind mode, set the camcorder to the playback mode. Make sure that the tension arm moves in the direction of arrow (B).

[Check item 2]

(9) Insert the cassette torque meter, set to the playback mode, and make sure that the value on the supply side is 8-10 g-cm [0.00078-0.00098 N·m].
(10) If both two check items are satisfied, remove the cassette torque meter, and additionally tighten screw (E), taking care that band bracket B does not move, to complete adjustment.

Note: If both or either check item is not satisfied, proceed with the following adjustment (countermeasures):

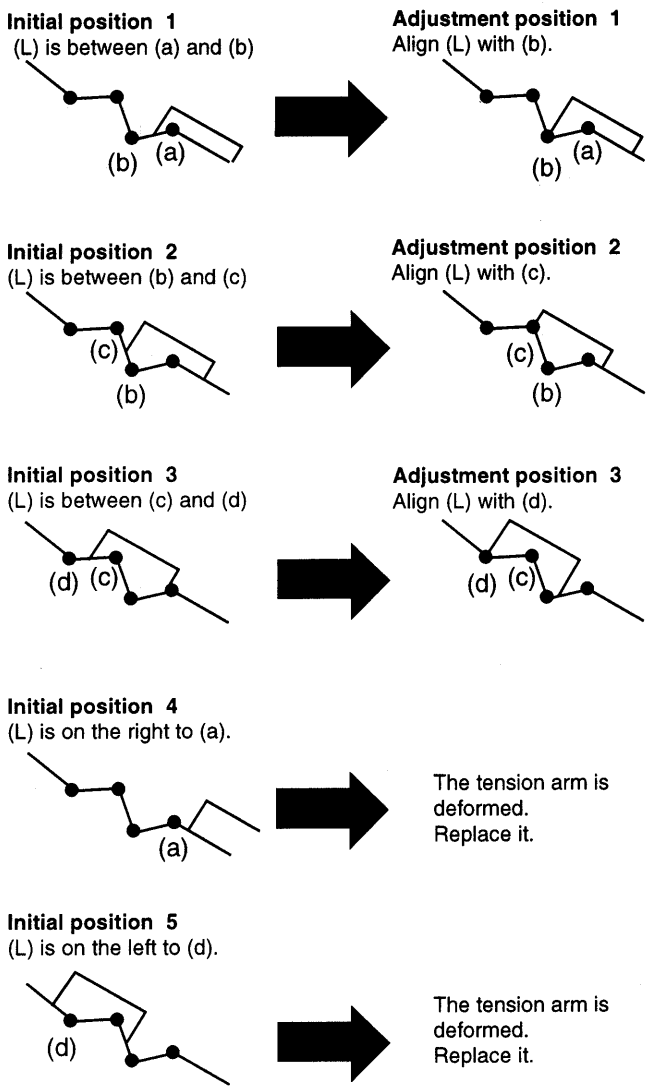


Fig. 3-2

When only check item 1 is faulty:

Fine adjust the position of band bracket B in the direction of arrow (D). Make sure of check items 1 and 2 again.

When only check item 2 is faulty:

If the torque is higher than the specified value, fine adjust the position of band bracket B in the direction of arrow (C), and then make sure of check items 1 and 2 again.

When both check items 1 and 2 are faulty:

If the torque is lower than the specified value, fine adjust the position of band bracket B in the direction of arrow (D), and then make sure of check items 1 and 2 again.

Notes: 1. If both check items 1 and 2 are not satisfied after the above countermeasures, check the tension band and tension arm spring, and if necessary, replace either or both.
2. Do not change the hooking position of the tension arm spring.

3.3 Coarse Adjustment of Guide Roller (O) and Guide (I) Heights (Fig. 3-3)

Note: Be sure to perform this adjustment after replacing the O guide roller or I guide.

■ **Test Equipment/Jig**

Sepcial Driver

■ **Adjustment Point**

Top of the Guide (I)
Top of the Guide Roller (O)

■ **Procedure**

(1) Screw in the guide roller (O) or guide (I) into each base, make surface (A) of guide roller (guide) in contact with surface (B) of base, and then loosen the guide roller (O) or guide (I) by approx. 360°.

Note: After this adjustment is completed, be sure to perform "3.4 Adjustment of Guide Roller (O) and Guide (I) Heights (Adjustment After Replacing Cylinder)".

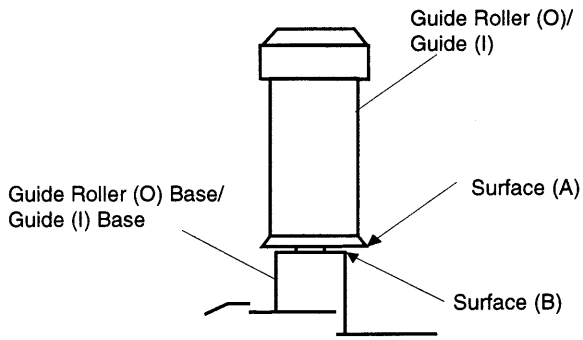


Fig. 3-3

3.4 Guide Roller (O) and Guide (I) Heights Adjustment (Adjustment After Replacing Cylinder) (Fig. 3-4 - 3-6)

Notes: 1. Be sure to perform this adjustment after replacing the guide roller (O), guide (I) or cylinder base. After replacing the guide roller (O) or guide (I), perform the coarse adjustment in the previous item in advance.
2. When the cylinder is replaced, the electric circuit adjustment is also necessary. See the service manual of this model and also perform electrical circuit adjustment.
3. Before starting adjustment, modify the ATF-R jig, referring to Fig. 3-6.

■ **Test Equipment/Jig**

Alignment Tape
ATF-R Jig
Oscilloscope
Special Driver

■ **Test Point**

TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ **Adjustment Point**

Top of the Guide (I)
Top of the Guide Roller (O)

■ **Procedure**

(1) Insert the alignment tape which has been completely rewound, and set the camcorder to the test mode by the following procedure.

[To set to the test mode]

1) Remove the power supply (adapter, battery, etc.).
2) Set the power switch to the VCR position.
3) Connect the ATF-R jig to the test terminal (test connector), supply power again with the playback button held down.

Notes: 1. If the mechanism operates (enters the playback mode) when power is supplied, it indicates that the camcorder has not been set to the test mode. Start from item 1) over.
2. The test mode is released when the power supply is removed.

(2) Connect an oscilloscope to TP3 and press the playback button.
(3) Synchronize the oscilloscope with TP1 (SW30/25).
(4) Set the oscilloscope probe to (+).

Guide (I) (Fig. 3-4)

(5) Holding down SW2 on the ATF-R jig, perform the following steps.
(6) Adjust the height of guide (I) so that the waveform is flat.
(7) Adjust the voltage control on the oscilloscope so that amplitude (a) of the waveform is set to 4 graduations.
(8) Set SW1 on the ATF-R jig to ON.
(9) Turn RT1 on the ATF-R jig, and make sure that the waveform changes while it is flat. If this cannot be confirmed, fine adjust the height of guide (I), to satisfy the condition.

Guide Roller (O) (Fig. 3-5)

(10) Set SW1 on the ATF-R jig to OFF.
(11) Set the oscilloscope probe to (-).
(12) Adjust the voltage control on the oscilloscope so that amplitude (b) of the waveform is set to 4 graduations.
(13) Turn RT1 on the ATF-R jig counterclockwise so that the voltage at section (C) (pin 2) on the ATF-R jig is 1.1 ± 0.1 V. Make sure that amplitude (b) of the waveform is set to 3 graduations.
(14) Adjust the height of guide roller (O) so that minimum amplitude (c) of the waveform is set to 2 ± 0.3 graduations.
(15) After adjusting the heights of guide (I) and guide roller (O), reinsert the alignment tape, and make sure that the contents of this adjustment are satisfied.

Note: After adjustment is completed, perform the following:
1) Remove the ATF-R jig from the test terminal (test connector), and release its modification.
2) Remove the power supply to release the test mode.
3) Make sure of adjustment items in step (7) and after of "3.5 OHD Arm Height Adjustment".

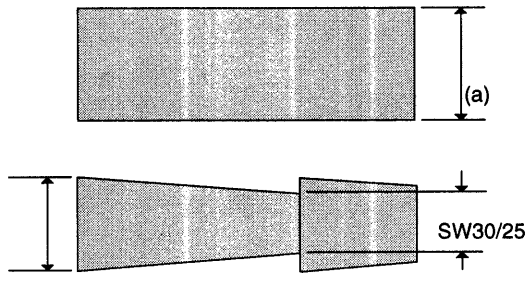


Fig.3-4

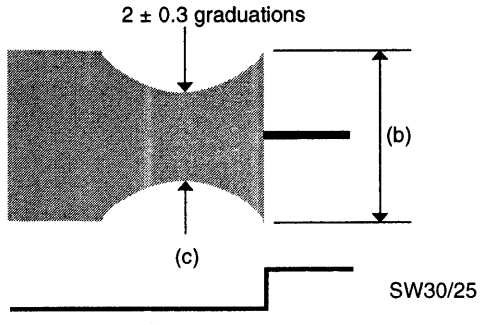
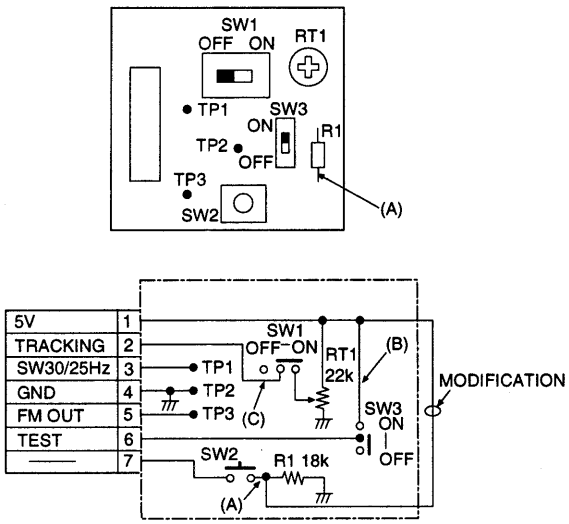


Fig.3-5



Modification: Connect terminal (A) of the resistor and pin 1 (5V).

Fig. 3-6

3.5 OHD Arm Height Adjustment (Fig. 3-7)

Notes: 1. Be sure to perform this adjustment after reinstalling the OHD arm.
2. After the heights of O guide roller/I guide are adjusted or the capstan motor is replaced, make sure of adjustment items in step (7) and after. If the contents are not satisfied, perform this adjustment from step (1).
3. This adjustment minimizes minute twisting of tape that occurs between the OHD arm and capstan motor due to the structure of mechanism.
4. It is not necessary to modify the ATF-R jig.

■ **Test Equipment/Jig**
Alignments Tape
Blank Tape
ATF-R Jig (SW1: OFF, SW3: OFF)
Special Driver
Oscilloscope
Color Monitor TV

■ **Test Point**
Video Out
TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ **State of VCR**
Connect the color monitor TV to video out.
Connect the ATF-R jig to the test terminal on the circuit board.

■ **Adjustment Point**
Top of the OHD Arm

■ **Procedure**
(1) Turn power on.
(2) Load a blank tape that has been completely rewound.
(3) Set to the forward search mode.
(4) Carefully observe the tape between the OHD arm and capstan in a bright place, and make sure that minute twisting occurs on the tape. The color of tape (reflected image) at the twisted portion will appear different from the other portions. Also, twisting will look different on the left/right and up/down depending on the direction of incident light, as shown in Fig. 3-7.
(5) Adjust the height of OHD arm so that the widest portion where color of tape looks different is less than 0.5 mm.
(6) Make sure that no curling of tape occurs at either the top or the bottom flange of OHD arm. (However, even if some curling occurs at either flange, it can be judged in the allowable range if there is no scratch on the tape and there is no gap between the other flange and tape edge.)
(7) Load the blank tape that has been rewound again. Set to the forward and reverse search modes, and make sure that step (6) is satisfied.
(8) Connect an oscilloscope to TP3.
(9) Synchronize the oscilloscope with TP1.
(10) Set the oscilloscope to (+) slope.
(11) Play back the alignment tape. Set to forward search and reverse search modes, and make sure that the FM waveform does not collapse.
Also, make sure that noise bars do not fluctuate up and down on the monitor screen.
(12) If step (11) is not satisfied, it indicates that the OHD arm is abnormal (deformed). Replace the OHD arm.

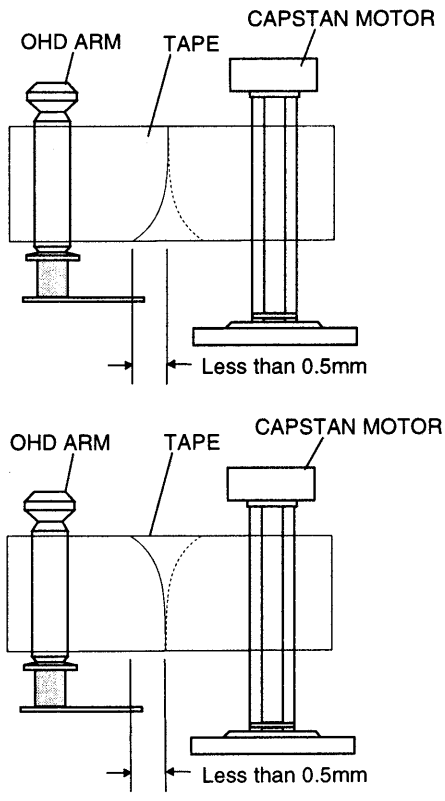


Fig. 3-7

4. CHECK THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	VCR Mode	Measured Reel Disk	Torque Value	Torque Cassette Used
Take-up Torque	Playback	Take-up	10 ± 3 g-cm [0.00098 ± 0.00029 N·m]	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Rewind Torque	Reverse Search	Supply	24 ± 6 g-cm [0.00235 ± 0.00059 N·m]	NTSC: SRK-8T-132 PAL: SRK-8T-232
Take-up Brake Torque	Reverse Search to Stop	Take-up	10g-cm or more [0.00098 N·m or more]	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Slack Removal Torque	Unloading	Supply	25-50 g-cm [0.00245-0.0049 N·m]	NTSC: SRK-8T-132 PAL: SRK-8T-232

For Torque Value

Torque values are indicated in conventional units in this manual, along with SI units in brackets [ ].

Note:SI stands for Le Système international d'unités in French, which is an internationally unified measurement unit system.

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